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MANUAL TRAINING MAGAZINE

EDITED BY
CHARLES A. BENNETT
ASSISTED BY
CHARLES R. RICHARDS
JAMES P. HANEY, M. D.
CHARLES F. WARNER

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MANUAL TRAINING MAGAZINE

OCTOBER, 1903

THE ORGANIZATION OF TRADE SCHOOLS.[1]

THOMAS M. BALLIET,
Superintendent of Public Schools, Springfield, Mass.

OVER 30,000 students are enrolled to-day in the evening classes of the Young Men's Christian Association, and several hundred thousand in correspondence schools, receiving instruction in technical subjects. These facts, together with others like them which might be cited, emphasize strongly the great need of trade schools, and of technical schools of a lower grade than engineering schools. We must not be prejudiced against trade schools as a part of the public school system because they emphasize the utilitarian element in education. Our forefathers, who founded the public school system, were altogether utilitarian. Their motive for establishing high schools was to fit young men for colleges which would prepare them for the ministry. They established elementary schools for the children of the masses, to teach them "to read, write and cast accounts." Their aim throughout was utilitarian. If, in their day, there had existed the need for trade schools, which exists at the present time, their first thought would have been to provide for such schools, and to give children an education which would prepare them to earn their living after leaving school. Indeed, we must revise our ideas of educational values. The educational value of any subject must be determined, not only by what it does for the pupil while in school, but also by what it contributes to his future development all his life. A study may have a high educational value while it is being pursued, but if it is completely dropped when school days are over, and does not connect very directly with anything in practical life, it may have less educational value than the learning of a trade which is pursued through

[1]Read before the Department of Manual Training of the National Educational Association in Boston, July 7, 1903.

life. The school ought to begin a development which is afterward continued by the environments, in order that the process of education may be a continuous one. To teach a man a trade, by which he may earn all his life a dollar or two dollars a day more than he otherwise might have earned, is to put his whole life and that of his family on a higher plane than it would otherwise have been. It means more of the amenities of life for his family; it means pictures, and music and education, as well as social opportunity and social position.

How may trade schools be organized under the industrial conditions existing in this country? First: Our manual training high schools should be converted into technical high schools. We have enough technical schools of college rank for present needs, whose function is to train engineers. There is a great need, however, of technical schools of high-school grade, whose function should be to train foremen and superintendents of shops, and, in short, that whole group of men who come between the engineer and the mechanic, and whose duty it is to direct the work of the latter under the general superintendence of the former. Such men must virtually know the trade of the men whom they are to supervise, and they cannot receive the necessary shop training in a higher technical school to make them sufficiently expert. Furthermore, these technical high schools should have one four years' course in manual training, solely for educational purposes. Possibly students may also be allowed to specialize in certain lines of shopwork, to enable them to learn the principles of the machinist's trade, and become experts in one of its branches. This latter is a question of which no one can, as yet, speak dogmatically, and it may be ultimately found inadvisable to teach even the trade requiring the highest skill in a manual-training high school.

Second: There ought to be organized in the shops of every well equipped manual-training high school, evening classes in trades, consisting largely of men already engaged at their trade, either as apprentices or as journeymen. The function of such evening schools should be, in the main, to make more efficient men who already know their trade in part, and to broaden their mechanical training. Such schools would meet with the approval of manufacturers, because they would train their men to do a higher quality of work; they would be approved by the workmen, because they would enable them to get promotions and increased wages; they would, furthermore, be approved by the labor unions, because they would accomplish all this without adding materially to the supply of labor in the labor market.

Third: Our evening drafting classes should be re-organized. At present there is usually only one such school in a city, and the class is taught by a professional teacher of drafting, or by a draftsman employed in the daytime in some manufacturing establishment. While such a teacher is able to teach the elements of mechanical drawing very successfully, he is not competent to teach its applications to more than one of the various trades. What is needed is an organization of the evening drawing classes in such a way that (1) all students may take a common course in the elements of mechanical drawing, to lay the foundation for specialization; (2) that for specialized instruction men may be grouped in classes, according to their trades; (3) that they may be given a teacher of drafting who knows the trade and can show its application to the details of the trade. This is the plan on which the so-called trade classes and trade schools of Germany are organized. There is very little in these schools of shopwork that requires machinery. There is shopwork in the schools for saddlers, tailors, etc., but only in rare cases in those for mechanics. Men work at their trade in the daytime and receive technical instruction in drawing and other subjects in the evening classes. We could double the attendance in our evening drafting schools, I feel sure, by organizing them on this plan.

Fourth: We ought to organize evening classes in mathematics for men engaged in the mechanical trades, grouping them in classes according to their trades, and giving each class a teacher who not only knows mathematics but also knows the trade of the men whom he is instructing, and can apply his instruction to that trade. Such classes can easily be organized in any of our evening high schools, and it is entirely feasible to organize them in connection with evening trade schools conducted in the shops of manual-training high schools.

Fifth: We ought to organize, in like manner, evening classes in applied physics, grouping the men again in such a way that those of the same trade, or closely related trades, are put together in classes by themselves, and are taught by a teacher who can teach not only physics but also its applications to the trade.

Sixth: We ought to organize similar classes in chemistry, in which, besides teaching the rudiments of chemistry as a basis for specialized instruction, its various applications to the manufacturing industries should be taught.

Seventh: We ought to organize classes in electricity, where students may receive not only theoretical instruction, but also have an opportunity to do laboratory work, and fit themselves for practical work as electricians.

Eighth: There is great need of a trade school for boys fourteen years old and over, who are not prepared to enter a high school, and are obliged to learn a trade or to leave school and engage in some kind of gainful occupation. Statistics show that a large majority of men engaged in the woodworking and ironworking trades have never attended a high school. Quite a fair per cent. of them have never completed a grammar-school course. These statistics prove that there is need of a trade school of lower rank than a high school. Such a school ought to take boys at the end of the sixth or seventh year of the elementary-school course, after they have reached the age of fourteen, and keep them three or four years, as may be necessary, requiring them to do as much academic work, both of grammar and high-school grade, as they can carry. No trade school for boys of this age should ever be established which does not require academic work.

All the instruction to mature men, who are already engaged at their trades, should be highly specialized, for in this way, alone, can it be made to appeal strongly to their interest. Such men come to an evening school for the purpose of gaining the ability to do something which will be of commercial value to them, and not, as a rule, for instruction which will only broaden, in a general way, their education. They may be able to run one machine, or two machines, in a shop in which they are engaged, and come to the trade school to learn how to run another; but they come to learn to run this other machine with sufficient skill to do work with it which shall have a commercial value. In order to secure attendance and interest at an evening school of any kind, where attendance is not compulsory, it is necessary to teach the student that particular thing which brought him to the school.

While in the case of men already engaged at their trade, a high degree of specialization must be allowed, the reverse is true of a trade school in which young boys are to learn a trade. Such boys ought to be given, in the first place, a broad course in manual training, making them familiar with mechanical principles and with mechanical processes of various kinds; in short, with the underlying principles and processes of a number of specific trades. They should be required to study mechanics, physics and mathematics, and the applications of these to the mechanical trades, with all the thoroughness of which they are capable. In other words, before they are allowed to specialize minutely, they should be given the broadest training possible in their case. The one thing which the American mechanic needs, and fortunately possesses, is versatility. With the rapid changes in trades, and the rapid displacement of one piece of machinery

and one process of manufacturing by another, the ability to adapt himself readily to these changes is absolutely necessary to the mechanic.

Ninth: Individual schools should be organized for girls. Cooking and sewing should be taught in the elementary day schools; and courses in domestic sciences, millinery, and dress making should be organized in our day high schools. There should be organized in some one high school in every city, a commercial course, in which girls, as well as boys, may fit themselves for gainful occupation. In addition to these, there should be provided evening classes in cooking, dress making, millinery, bookkeeping, and stenography and type writing for young women who are employed in the daytime and are unable to attend a day school.

THE ATTITUDE OF TRADES UNIONS TOWARD TRADE SCHOOLS.[1]

WILLIAM H. SAYWARD,
Secretary of the Master Builders' Association, Boston, Mass.

TRADES UNIONS, as a rule, are opposed to the trade-school idea; and a summing up of their reasons for this attitude may be expressed as a fear of the creation of too large a supply of workmen through the operation of such schools. Many other reasons, more or less superficial, are given, but the real underlying objection is that unrestricted training in the trades will flood the market, which, it is claimed, is already overcrowded.

While, therefore, speaking in a broad sense, trades unions do not look with favor upon the trade school *per se*, one cannot fail to notice evidences of great and increasing interest among workmen at large, as well as in their organizations, in that application of the trade-school idea which gives opportunity for development in their chosen trade to those who have thrown in their lot with the actual workers, and propose to earn a living in their company.

Another reason given, why trade schools are not a benefit, is that "employers no longer desire the thoroughly-trained all-round man, but want only the specialist," therefore a trade school, which can at best teach a young man to perform the general operations or manipulations of a trade only fairly well, is of little real value to him, for he is not fitted to compete with the specialist in any department of that trade.

In some of the minor trades, such as cigar-making, the objection to trade schools is most strenuous on the ground that the training in such schools has a tendency to increase child-labor.

Then there is always the jealousy, which I think trades unions unconsciously foster, which expresses itself in the belief that trade and technical schools are designed to help the rich, and not the poor,—to provide opportunity for young men of means, who intend to go into manufacturing, or to conduct some business, to secure a technical training in and command of the elemental movements of a trade, rather than to help young men who intend to become real workmen.

[1] Address before the Manual Training Department of the National Educational Association, Boston, July 7, 1903.

It is necessary here to call attention to the fact that this discussion does not relate to the technical, or manual training school, in any respect, but to the trade school proper, the school which purposes so to *teach* a trade that the student will be fitted to *industrially use* the trade. The instruction in such schools is made available to a large extent in the evening, so that young men at work during the day may take advantage of this opportunity.

There are many schools of combined academic and practical character, known as manual training and technical schools, in this country, both private and public, and to these there is no expressed objection by trades unions, but there are few trade schools pure and simple, and to these, unions, as a rule, are at present strenuously opposed. The idea and purpose in these schools is to turn out finished mechanics, as far as knowledge of the science and practice of the trades is concerned, it being usually frankly admitted that the graduates will not be commercially equal to skilled workmen in point of speed of execution, or adaptability, until they have had sufficient experience with real work to give them these qualities. In practice, however, it turns out that the graduates of these schools have attained fully enough science, and just enough practice, to fix methods and principles sufficiently to enable them to pass current as skilled workmen, particularly when there is great demand, and they therefore seek and obtain the going rate of wages as readily as men who have worked for years at the trade. In these schools of ours there is no attempt, I believe, to restrict the opportunity to those who have chosen a special trade as their vocation, nor to make them distinctly continuation schools, or schools for developing in theory as well as technique, those already entered as apprentices, and thus devoted to the trade.

The demonstration is narrowed down to this,—that when trade schools limit themselves to improving the theoretical, technical and practical knowledge and skill of those who are already entered upon a trade, the trades unions seem to approve, and, in many cases, to participate in conducting them. Here, then, seems to be very clearly marked the point at which friction begins to diminish. The next step should be to determine whether this point is well taken by the unions, and, therefore, whether they should be supported in it.

It will be readily admitted that any schools for the higher vocations, or professions, which pretend to turn out, at graduation, the completely qualified practitioner, assume too much, and whether there be any organized opposition to this assumption, or any concerted disclaimer set up

or not, it still remains true that the graduate is not so received, and he is practically compelled to pass through quite an extended season of severe experience before he is accepted at full value,—"going rate of wages"—by the community in which he attempts to practice. It apparently needs no union to produce this effect.

When, however, we consider the mechanical planes of occupation, commonly classed as laborious, we find that the public does not set up, either instinctively, or with definite purpose, any such test, and, therefore, organizations in these vocations have addressed themselves to the protection of their class from indiscriminate competition.

These organizations have very good grounds for their assertion that trade schools tend to demoralize the trades when managed on the "wide open plan," that is, free to any one who wishes to attend, regardless of whether he is committed to a trade or not, and with no control or supervision set up, within or without, to prevent him from departing from the school, either at close of the course, or at any time, and, with a smattering of skill and knowledge, pass himself off as a full-fledged practitioner. This possibility, which, as I have already indicated, has, in practice, developed into a probability, is certainly not to be looked upon with complacency, even by the intelligent, though unaffected observer; therefore it is not to be wondered at that those most affected should demur, and somewhat strenuously criticise the source from which the possibility springs.

They may well claim that if the learned professions, such as the medical and legal, and sometimes others, are safeguarded with greatest care, that in the *skilled trades* there should be some method of control which will at least guarantee that insufficiently trained workmen shall not be given full standing, and full wages, simply because they have passed through, or, perhaps only partially through, the courses of a school. But, while this attitude is natural and wholly defensible when viewed from the standpoint of reason and of experience, it is not at all reasonable or wise to condemn the trade school itself, for I think it can be conclusively shown that upon schools of this character the trades, as such, must depend for their own preservation; therefore, the effort should not be to destroy the trade school, or blindly oppose it, but to modify its methods and utilize it as the only available means to regulate and control the output of workmen, which is really the point at issue as far as trades unions are concerned, and to protect the community as well against the untrained and inexperienced, for under existing conditions, for some of which the trades unions themselves are to a considerable extent respons-

ible, the public is in some danger of losing altogether the all-round artisan, the mechanic skilled and interested in his calling.

It behooves the trades unions, as custodians of the interests of the workmen in trades, to look more deeply into the function of the trade school, and to consider more carefully how much the interests they have in charge depend upon the existence and operation of these schools, and it behooves employers to concern themselves more effectively, to the end that they may reap the benefits which surely come through wise administration of the trade schools. It is evident that there are some weaknesses in trade schools as at present developed. I am inclined to think that one of these is indicated in the somewhat crude objections made by trade unions. I am convinced that there should be a comprehensive and effective system established, utilizing the trade school idea, which shall supplant completely the present unsatisfactory condition of floating off on the market an unfinished product, which, if it ever becomes finished, becomes so in spite of conditions rather than by virtue of or purpose in them. I do not believe for a moment that our privately established trade schools were ever intended or expected by their founders to produce too large a supply of mechanics, and thus flood the market, or to incite young men to half perfect themselves, and then deceive the public, but the function and purpose of the schools were distinctly expressed and intended to be to furnish as systematic and favorable a method of instruction and training as possible to fill a void created by the decay of an old system, which, while sufficient in its day and generation, had vanished, never to return. This function and purpose, to my mind, are more emphatically evidenced year by year, and as this instruction and training can best proceed in conjunction with practice in real work, in which employer and workmen are engaged, I believe that the most complete method of operating that function and realizing that purpose lies, as I conceive it does in all matters affecting labor, in a more complete co-operation between organizations of employers and organizations of workmen.

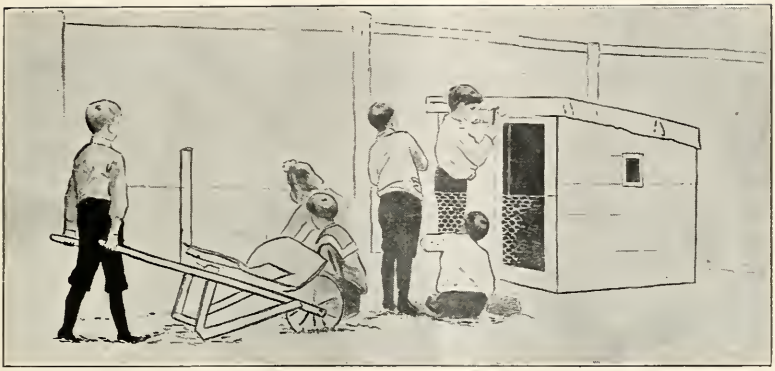
The policy of this co-operation should be to create good workmen, the best, most skillful, the most complete, *and then to have the unions composed of these, and these only*.[1] By a policy of this nature, which could only be carried out by a joining of hands of employers and workmen in the management and direction of trade schools, with this end in view, the unions would be relieved of the most telling criticisms now used against them, and their reason for being would be more firmly established. By

[1] Italics by the editor.

this measure the unions would be strengthened by "recognition" in the best sense, inasmuch as they would become the gauge and standard of excellence, and instead of coercion being necessary, as now, to keep the organizations up to that efficiency which numbers are felt to indicate, membership would be eagerly sought, because desired as a sign of selection, and as a safeguard against being herded together, as now, in one mass of good, bad, or indifferent. The "non-union" man would then be the inefficient, the unreliable, the dishonest, the quarrelsome, the disturber, the dissolute, and the generally unworthy, and non-union he would have to remain until he should so reform as to make himself desirable. Then would there be the true line of demarkation between union and non-union, a natural and proper one, not the artificial and dangerous one that now exists. Unions would then be accepted by all as the clearing-house for workmen, as a sure source of supply of trustworthy, efficient and skilled workmen, and not as now, an aggregation of anything and everything that will simply swell an army, the leaders of which assert that "labor is a force militant," and that "as such its victories are to be achieved." Until this dispensation, labor has been supposed to be of the essence of peace, and not war, and it has not been until the forces of labor, as demonstrated through cheaply conceived, unrestrained, or poorly administered organizations, have been diverted from their true channel, that the world has witnessed the commission of acts under the impulse of this force, which have been unworthy of humanity, and which have roused the self-respecting in all our communities to most determined resistance.

It is my belief that the trade school, properly utilized as suggested, supplemented by further intelligent co-operation of real employers and real workmen, in *all* affairs of *mutual* concern, may be one of the greatest conservators of safety. But these agencies for good must not be left to dilletante exploitation, nor to the equal danger of the general usage. Let employers and workmen engage in this service with the glad seriousness of conviction, and hope will succeed despair in all these relations.

In conclusion I would state that in my opinion the trade school does not offer a privilege which any one should be permitted to enjoy without judicious supervision and control. It is an opportunity which should be chiefly available for those who determine upon a trade as their life-work, and have a reasonable degree of fitness for it. In other words, the trade school should be considered a training field for actual workers, and its operation should be reasonably restricted and controlled, to the end that its graduates may have definite standing, and the community as a whole be protected against partially perfected workmen.



MANUAL TRAINING IN THE ELEMENTARY SCHOOL.[1]

ELIZABETH EUPHROSYNE LANGLEY,
Associate in Manual Training, School of Education,
University of Chicago.

THE topic announced for my paper is "Manual Training in the Elementary School," but I desire to limit what I have to say to hand-work in wood, and to put my chief emphasis on the work below the sixth grade. I choose this phase of the general theme because I can find few schools where elementary wood-work is given fair trial. It is either not put in until after the fifth grade, or it is given to each grade but once in two weeks, or it is made an isolated subject, or the classes are too large to handle, or the equipment is entirely inadequate. Those who plan courses of study have yet to realize that if elementary manual training is to bring in large returns in the development of the child, it must be rightly equipped and managed. And may I be allowed to make the prefatory statement that whatever I have to say about manual training applies as well to girls as to boys. I have yet to find the place, from the first to the eighth grade, where the kind of work, or the kind of interest, would justify the separation of the sexes.

What I have to say of theory will be incidental. My chief arguments will be the statement of actual results in schools where the theory is tested. In order to have concrete instances, I shall use especially the

[1] Abstract of paper read before the Department of Manual Training of the National Educational Association, Boston, July 9, 1903.

work now being done in the School of Education, of the University of Chicago.

The problems that confront the elementary manual training teacher have to do with the choice of articles to be made, and the methods to be employed. Both of these are conditioned by the ideal towards which the teacher works. Back of all problems, and determining their solution, is the idea that manual training should not be an isolated subject, not merely "something different," the chief purpose of which is to relieve the strain of other work, but that it should be closely interknit with the general school life, a part of the method of self-expression. The conception of manual training as thus bound up with the life of the school, must largely determine the answer of the manual-training teacher to al important questions.

The question that meets the teacher at the outset is, what articles shall the children be allowed to make? Our answer is, that each child should, with certain limitations, be allowed to make that which he wishes to make. That is, the child, in so far as he is able and eager, suggests what he wishes to make. This choice is, if possible, accepted, and the plan is worked out in conference with his teacher. But if, considering the child's age, strength, and skill, the choice is an unsuitable one, and must be rejected, the rejection is not autocratic. That, too, is the result of conference with the child, so that, while working under guidance, he has yet the consciousness of working along lines of his own choice. The first grade chose, for instance, this year, to make play-houses. The second grade made bird-houses, seed-boxes, and flower-boxes. The third grade co-operated in the making of a large chicken-house. The fourth grade made as their co-operative work a train of freight cars, with road-bed and ties. Both of these grades have done individual work of many sorts, including such articles as fern-stands, tabouret, foot-stools, picture-frames, book-cases and small tables. The fifth and sixth grades have made furniture of the colonial type, including corner cupboards with glass doors, book shelves, etc. They are also making other individual articles, such as an eight-foot scow, for use on the lagoons, a child's chair, wall-cabinets, etc. These grades are also doing simple relief carving. The seventh-grade children are making boats, not large boats for actual use, but miniature models to represent the boats of various countries and of various periods, such as a Viking boat, a Chinese boat of state, a Venetian gondola, and various sorts of American boats, from the raft to the house-boat and yacht. The eighth grade has made oak folding screens, oak book-cases, an oak couch, tabouretes in cherry and mahogany, and

other similar articles, while their community work is an eighty-foot arbor, for the school garden.

From this rapid illustrative summary of articles actually made, it is at once apparent that we have paid no attention to a logical sequence of models, as in the sloyd system, according to which all children make the same articles in the same order. No one trained under Herr Salomon can fail to see the value and beauty of that system with its definite and orderly progression of difficulties, and its comprehensive and clever introduction of wood-working tools, and I would advise any teacher to take it, especially if he wishes to depart from it in the interests of correlation, or the child's individuality. But experience convinces me that with young children the idea of "logical sequence," as that phrase is ordinarily interpreted, must be thrown to the winds. In other words, logical sequence bases on subject matter should give way to the natural, and, therefore, truly logical development of the individual. The more, and definite, and orderly, and comprehensive the knowledge of the teacher, the better, for such knowledge gives him a point of view, gives backbone to his work, saves him from irrational adaptations; but the child must be left free to find himself, and to express himself. As Colonel Parker says, "It is only when we get into the child's own motive that we have the true, logical scheme."

The governing principle in the choice of articles to be made must be, then, the interests of the child, but much of the work done centers naturally about the general work of the grade at the time. The play-houses of the first grade grew directly out of the fact that all work of the grade centered about domestic life. Eskimo huts in clay, and Indian wigwams in raffia and twigs, led the way naturally to the more elaborate life of civilized man as expressed by the wooden house. The interest in the house and the life it represents has really come to dominate the handwork of the grade. The work in weaving has resolved itself into the making of rugs for the floors, the art work has contributed wall-papers, designed and painted by the children, while the study of color has been given a great impetus by the painting of the outsides of the houses, and portions of the interior, and some ambitious children have even levied on the clay-modeling department for chimneys and fire-places. The latest work of the grade is in the making of simple wooden furniture for the houses. The hen-house of the third grade was the apparently imperative outcome of the decision of the grade to adopt a hen. The cars of the fourth grade, and the boats of the seventh grade, were the natural expressions of an interest aroused by a study of transportation. The

colonial furniture was a choice of the fifth and sixth grades after they had become interested in the life of the colonial period, and after visits to large furniture shops, where they were able to compare furniture of different periods and styles. The choice of individual articles is made for personal reasons. It will be seen that in these cases, and they are but typical, the controlling principle of choice is the interest of the child, but guided and developed by the work of the grade.

It frequently happens that the children wish to do co-operative work. Such work is of all sorts, from the simple union of two or three children on the same article, to the combination of the whole grade in the carrying out of some community project. When work of this latter sort is undertaken with so much enthusiasm that the children willingly lay aside their individual plans for the larger class idea, it has distinct educative value. For instance, in the making of the chicken house each child had the responsible feeling that if the edifice was to do credit to the grade, the boards must match and so conform to the plans and measurements agreed upon. Each board was marked with the name of the maker, and as he nailed it into place, whether rough or uneven, or well squared and perfect, it stood as his contribution to the public weal and received praise or blame according to the critical judgment of that public. There was thus being developed in the child as distinct a sense of civic responsibility, as distinct a recognition that his work must stand or fall in fair competition with the work of his fellows, as would ever come to him in later life. It is a help in managing community work if some of the more able boys or girls are appointed captains of industry with supervision of special portions of the work and special groups of workers, and it certainly is a great advantage to the child who is thus given the opportunity of putting his superior ability at the service of less skillful companions or of the commanity at large. Responsibility educates, and just so far as a child can take responsibility for himself or for others, is he becoming a capable being. A further result of community work is a kind of intelligible and justifiable civic pride. No railway magnate can look upon his network of roads with a greater satisfaction than is experienced by the children of the fourth grade as they survey their thirty feet of track and the six cars that make up their system of "University of Chicago fast freight". Such work also gives a grade a standing with other grades. They are recognized as capable of planinng and carrying on works of public utility. Considerations of such weight as these in the development of the child should overbalance any difficulty or perplexity on the part of the teacher in managing the work.

One result of allowing the work to follow the desires of the child has been that a surprisingly large number of the articles made have not been for individual ownership. For instance, the third grade made paper knives enough for the first and second grades and sent them as valentines; the cup-racks, knife-boxes and plate-racks needed by the grades for the lunches are often made by one grade and presented to another. Throughout the school little conveniences of various sorts are made, now by one grade, now by another. The boats of the seventh grade were made with the distinct purpose of presenting them to the school museum. Nearly every child finds great delight and a steady incentive to the best work of which he is capable if he has the happy consciousness of "making a present" for someone. The most original and inventive, the most joyous, eager and intent work of the year is that known as Christmas work. The child is putting his best efforts into the expression of some idea clearly his own, and the stimulus of his activity is the happiness he will bring to some one he loves. All these elements are wholesome. The old way of teaching a child by pouring knowledge in upon him, the old way of making him happy by giving him presents, are unsound psychologically in comparison to what is accomplished by this Christmas work. Joyous self-expression, a spontaneous altruism, these are natural and permanent springs of happiness that any elder person might covet. Certainly the child, radiant with his own thought, absolutely electric in his energy, brim full of the joy of giving, is worlds removed from the child who through false ideas of education has been converted into what Carlyle calls a "passive bucket to be pumped into".

In the matter of technical skill, the advance from the simple use of the simplest tools in the first grade to the really excellent work of the eighth grade has been a long step, but the point to be insisted upon here is the way in which this ability to do difficult and even elaborate work has been gained. There has been no prescribed progression of tools to be used; no prescribed order of difficulty to be met; there has been no emphasis on technical skill as such, and no work done merely for the sake of acquiring such skill. And yet, it has come to pass that the most ingenious and orderly system devised by the manual training teacher for the sake of securing technique has been outdone in its own field by the unclassified, unlabelled, and apparently unordered process of development achieved by the child in the pursuit of his own plans. How does this come about? He achieves technique, not because he seeks technique or realizes its value even, but because of his eagerness to express in the best fashion the ideas he has in his mind. His enthusiasm for

anything he has to make begets patience, perseverence, carefulness and attention to instruction, and these qualities in turn beget technique. He has never sawed to a line for the sake of sawing; he has never planed for the sake of planing; he has never chiselled for the sake of chiselling joints, but he has performed all these operations in making his chosen articles. He has gained technique incidentally, as it were. He has co-ordinated hand and brain, he has bent his muscle to the service of his will, but almost unconsciously and in the interests of the article he has made.

By the fifth, or even the fourth grade, there is recognition of fine workmanship and finish. The fifth grade lad who, when remonstrated with for using his father's best linen handkerchiefs in which to wrap his fern-stand, said, "You can get more handkerchiefs, but you can't get another fern-stand like this!" was typical. And every especially good piece of work receives hearty, even affectionate appreciation from the children.

The emphasis put by instructors in secondary schools on the educative value of the process *per se* may be the only sound principle for manual training in secondary schools, but in the elementary schools such emphasis would be fatal. Formal routine and discipline in manual training cannot be advantageously applied to young children. With regard to the attitude of the elementary manual training teacher towards technique, I have, then, two settled articles of belief. First, elementary manual training can never be approached from the point of view of technique, and can never be based on the value of processes as such. But, secondly, the elementary manual training approached from the point of view of individual interest can, and indeed will, result in a technique of surprising excellence. The work is not in any sense forced or unnatural. The excellence of technique comes through the joyous energy of the children; their gay competition; their affection for the work, and their pride in doing it well.

May I say a word as to the equipment of the manual training room and of the manual training teacher? That tools and benches should be of the best quality; that floors should be of wood, not cement; that racks for lumber should be safe and convenient; that locker space should be ample; that the room should be dry and light — all this, perhaps, goes without saying. There should be, also, small movable platforms that fit under the benches and of varying heights, so that the benches may be properly adjusted to the height of the pupils. The room should not be small and mussy and shop-like, but should be inspir-

ing and beautiful in various inexpensive ways. There should be floor space enough to keep on hand various suggestive completed articles. There should be wall space enoughfor samples of wood, finished and unfinished, and for pictures of trees. The room should, indeed, be both workshop and studio, with a happy combination of the artisan and art elements.

In regard to the manual training teacher, I object to the grade teacher minus technical skill, and even more, to the artisan minus culture. It has often been said that all sorts of hand work should theoretically be taught by each grade teacher to her own grade, in order that the relation of the subject may be kept more perfectly in mind. But her hands are already full. Probably the idea of perfect fusion of the different parts of a child's work can be more effectively accomplished by having the special teachers identify themselves with the interests of each grade. The mere artisan, the easily available, inexpensive man, clever with his hands, but ignorant of the other work of the school, incapable as teacher or guide, or companion of the children outside of his specialty, is absolutely out of his place in the manual training room. He could be justified only on the unjustifiable basis that the proper aim of manual training is to teach a trade. But if the true conception of manual training does not put the emphasis on *manual*, but on *training*, then it is clear that the manual training teacher should have an admirable equipment of culture and scholarship as well as technical knowledge in his own line.

To sum up, I have tried to say that manual training should be put into the elementary grades; that it should be thoroughly co-ordinated with the other work of the grades; that it should be carried with a flexibility of system which would allow the child's individuality free play; that technique should be attained, but that technique and finished products should not be the ultimate objects of the work; and that the best results can be obtained only when schools have adequate equipment, full time, and competent teachers.

Now I recognize that I have been presenting the possibilities of the work when done under advantageous conditions, and I know that I shall be met with the criticism that what I advocate is not practicable in public schools. I admit this, and I know that any teacher in public schools would be compelled to modify what I have said according to his restricted conditions. But if manual training teachers have ideals, and refuse to accept present conditions as final, we may hope that the opportunities now offered in only a few private schools may be more nearly reached in all schools.

EDITORIAL.

Four volumes of the Manual Training Magazine have been completed, and with this number we begin volume five. At this time we wish to thank our subscribers and friends for their thoughtful co-operation, their helpful suggestions and their hearty words of approval. We hope all these will be given to us as freely in the future as in they have been in the past. We realize that the ideal magazine we have had in mind is yet far beyond anything we have produced; we appreciate the fact that if the Magazine is to approach more nearly to our ideal, we must have not merely the passive approval, but the active assistance of more of those who are most vitally interested in the development and progress of manual training in its broadest and highest educational significance. As indicating a most important step toward this end, it gives us genuine satisfaction to be able to announce that the following gentlemen have consented to become associate editors of the Magazine: Mr. Charles R. Richards, professor of manual training, Teachers College, Columbia University, New York; Dr. James P. Haney, director of manual training in the public schools of New York City; and Mr. Charles F. Warner, principal of the Mechanic Arts High School, Springfiield, Massachusetts. As is well known to every reader of this Magazine, each is a recognized leader and an able writer. Together they stand for what is broadest and best in manual training work. The immediate result of this increase in the editorial staff is seen in a more prominent place and better form for editorial writings.

Another step of some importance is the formation of the department of "Current Items" out of the "Brevities." This will begin in the January number, and will be taken in charge by Mr. Clinton S. Van Duesen, of Bradley Polytechnic Institute. This change need not affect the character of the news items published, but it will group them together and insure to them the special attention they need. Still another change, and one that will be welcomed by the readers of this number may be found in the printer's work. The entire text of the Magazine is printed from new type purchased especially for the purpose.

Charles A. Bennett

THE SUCCESS OF THE BOSTON MEETING.

One of the most noticeable features of the recent great convention of the National Educational Association in Boston was the prominence given to the meetings of the Manual Training department, including its two joint sessions with other departments. This unusual program was made possible by a combination of several favoring conditions. In the first place, there is a wide, intelligent interest in the subject of manual training and industrial education in Boston and neighboring cities. Massachusetts is the only state which requires by law that manual training shall be maintained in all its public schools. Chapter 42 of the Revised Laws of the Commonwealth of Massachusetts contains the following:

SEC. 9.[1] Every city and town containing twenty thousand inhabitants or more, *shall maintain* the teaching of manual training as a part of both its *elementary* and its *high school* system.

SEC. 10[2] A town may establish and maintain one or more industrial schools, and the school committe shall employ the teachers, prescribe the arts, trades and occupations to be taught therein, and have the general control and management thereof; but it shall not expend for any such school an amount exceeding the appropriation specifically made therefor, nor compel the pupil to study any trade, art or occupation without the consent of his parent or guardian. Attendance upon such school shall not take the place of attendance upon public schools required by law.

In the second place, the great leaders in the organization of the convention did not fail to appreciate the growing importance of the manual and the vocational elements in the public-school systems of this country. President Eliot has never neglected the interests of manual training in his progressive and comprehensive educational teachings, and the Manual Training department, as did all the other departments, obtained early in the year, suggestions from him upon the preparation of its program which were of great value. The local committee assigned to this department the largest and most central of the churches offered for the use of the convention.

But probably nothing contributed more to the success of the manual-training programs, and to the success of all others as well, than the preliminary meeting of the department presidents, held in Boston, the first week in January — an innovation due to the prompt, direct, and business-like policy of President Eliot. Here were discussed various provisional programs, topics and speakers, and suggestions were exchanged as to the best plan to be followed in the arrangement, both of separate and joint

[1] Manual training, 1894, 471, 1898, 496, §4.

[2] Industrial schools, 1872, 86, P. S. 44, §8.

programs, and the methods to be employed in conducting the meetings. Having determined thus early, a consistent policy to be adopted by all departments, and having established most cordial understandings with one another and with the president, the work of organizing the largest meetings in the history of the National Educational Association was undertaken with promptness and enthusiasm. It was, indeed, an inspiration to work under the leadership of President Eliot.

CHARLES F. WARNER.

A QUESTION OF PRODUCT AND PRODUCER.

It is generally agreed that the late meeting of the National Educational Association was one of the best in its history. As the sessions of the Eastern Manual Training Association were also held in Boston during the same week, unusual opportunity was given to compare the professional excellence of the papers presented to that association, and the Art and Manual Training section of the N. E. A. with those offered to the audiences of the other section meetings.

The comparison was encouraging. Among the many papers which dealt with the arts of construction and design, there were, as always, one or two oratorical "efforts," one or two long and prosy screeds, and one or two which showed, by their construction, that the ink of their hasty writing was scarcely dry. But other sections saw essays hasty and essays prosy, while over-long papers will alway be read, despite time limits, sits there no chairman with a good gavel, a strong arm and a New England conscience.

The three programs referred to were encouraging, in that they showed on the part of so many of the speakers an increasing professional pride, an added determination to contribute to the literature of the craft — not another sermon or panegeric on the arts, but rather a careful study of some phase of their development, organization or teaching. Upon the necessity for unification of the different arts, there was surprising unanimity. Arts for arts' sake had scarce an advocate, while nearly every speaker emphasized the fact that the different subjects of drawing, construction and design should be jointly presented to the little child, that their mutual relationship might, by him, be clearly grasped. The constructive element was brought well to the fore and actual making of things demanded, that their planning and decoration might have adequate realization.

This note was sounded by many speakers, in many keys. If there was anything lacking, it was the word of warning which should be given to those on the point of abandoning old practices to be on with new.

Many signs point to the fact that such warning is needed, and that teachers about to reorganize their work along joint constructive and decorative lines, should understand that no wholesale introduction of "making", and no uniform method of presentation throughout the grades will result in the success for which they hope.

The problem for the supervising teacher is the differentiation of the material which the different arts have to offer to the child at each stage of his growth. One is not to direct the class instructor, in the curt phrase of Carlyle, to "produce something, even though it be but the infinitesimal fraction of a product." Both process and product must be suited to the producer, and the producer, when a little child, is an individual changing each year, each month, almost each day.

Between the stages of such growth from infancy to adolescence, the teacher must distinguish. For each, the arts have a distinct contribution. The advanced pupil will follow with interest, work in the crafts, but to the primary child, construction is distinctly for the pleasure of making. The latter will follow with avidity, a culture-epoch plan or any other plan, so long as it gives him a chance to gratify motor longings. He will follow the most mechanical of courses, rather than not make anything, but will, by his enthusiasm,show his infinite preference for a plan which affords him opportunity freely to express himself — to take some simple process and turn it to personal ends, in a personal manner.

The teacher who fails to grasp the fact that the arts are media of expression for the little child, inevitably turns them into automatic channels. Materials and exercises are presented which require for their development much more of patience than of skill. Raffia or yarn is woven, patches are darned, and endless seams are made — all of surpassing excellence. The fact, however, is overlooked, that in the performance of these prodigies by the little child, his fingers, after the first few rounds, gain no additional dexterity, while only too often his blinking eyes see in the indifferent light of the class room, an additional weight placed upon the beam that tilts them myopic-wards.

The arts to the primary teacher should, first of all, present themselves as developmental agents, through which the child by virtue of his inherent desires, can be schooled to habits of independence and personal initiative. They are not to be used or thought of as mechanical drills — forms of muscle training merely, which seek through constant repetition of difficult co-ordinations, to establish perfection of automatic performance. Such perfecting of fine movements runs counter to physiological teaching. Its development at the expense of individual expression means that the mental

activity which governs the latter must suffer the atrophy of disuse. The arts, as all other subjects, must be taught for the child's sake. Beauty of product must never be allowed to serve as an excuse for manual or mental mechanism of procedure.

JAMES P. HANEY.

THE TRADE-SCHOOL QUESTION.

Any thoughtful person, listening to the discussion of the trade-school question in the Manual Training department at the Boston meeting, must have left the convention with a clearer conception than ever before of the real problem. Certain important facts must have stood out prominetly in his mind, which might be summarized as follows:

First: The term "trade school" is used very loosely. Some speakers use it as covering technical and continuation schools, in which the instruction consists largely in science, mathematics and drawing, while others confine it to schools in which instruction is expected to produce journeyman mechanics. This ambiguity is unfortunate and leads to misunderstanding. It would seem that the majority do not apply the term "trade school" to an institution without shop equipment, giving instruction in applied science, mathematics and drawing. Most continuation schools are not, therefore, trade schools in the more common use of the term.

Second: There is a growing demand for skilled labor, owing to the fact that the factory system has modified, weakened, and in many cases uprooted the apprenticeship system, so that the supply of young workmen in many trades is not equal to the demand. Machinery has not reduced the demand for skilled workmen; it has merely modified it.

Third: Both the employers and the labor unions are looking more and more to schools of one kind or another to furnish the skilled workmen of the future.

Fourth: It is not yet clear how these schools shall be provided and controlled, but it is significant that neither the manufacturers nor the representatives of organized labor who appeared on the program, would require trade schools to be supported at public expense. Mr. Higgins believed trade schools could be managed properly only by manufacturers, while Mr. Sayward suggested that they be provided by manufacturers and labor unions working together. It was the agressive educator only, who wished to step forward and supply the demand for trade schools at public expense. It is evident that the question is a many-sided one. Teachers of manual training can afford to be conservative in their attitude and action.

CHARLES A. BENNETT.

WOMEN AS TEACHERS OF MANUAL TRAINING.

The question of the increase of women teachers in the public schools, although by no means a new question, seems recently to have received considerable notice in the public press. Some writers have been content to state the causes of this increase, others have called for reform, declaring that the schools are being "over-feminized", and still others have lamented the condition as one beyond repair, on the ground that the profession of teaching, so far as the public schools are concerned, has become to such an extent a woman's profession, that the question of reversing or even checking the tendency is no longer a practical subject for discussion.

This is not the place to enter into the discussion of the general question; but whatever may be the conflict between present practice or tendency and pedagogical theory concerning this matter, as regards schools in general, there has been little or at least much less occasion for difference of opinion or of practice in elementary or secondary manual-training schools. In this department of education it has generally been recognized that men have their peculiar field and women theirs. The increasing importance which is now being given to the vocational element in these schools will make the need for the masculine element in certain places, and the feminine in certain other places even more apparent. If, for example, a boy is to take lessons in woodwork or ironwork, not merely for the educational effect upon him, but also with the object of acquiring, as thoroughly as possible, a knowledge of the technical processes employed in the same or similar constructive work in the industries, he ought to take those lessons of a man who knows these processes as a man only can know them. In hand-tool and machine-tool work for boys, a man teacher is the natural one. Woman's peculiar field is in the occupations of the home. If, according to modern views of education, we are to begin the activities of life in school, it evidently follows that the proper function of the school mistress, and the natural school activity for the girl pupil in manual training, should be very largely confined to the household arts. Furthermore, boys dislike to take lessons in bench work from a woman as naturally as girls would ridicule the idea of taking sewing lessons from a man. It must be acknowledged, however, that a teacher may be strong enough to overcome such natural dislikes, but it must also be acknowledged that such teachers are rare exceptions.

CHARLES F. WARNER.

ASSOCIATIONS.

NATIONAL EDUCATIONAL ASSOCIATION.

The Boston meeting of the National Educational Association, July 6-10, was one to be remembered a lifetime. There was a registration of over thirty-two thousand people, and an intellectual and social feast never before approached in all the brilliant history of the Association. This feast was not merely one of rich programs of set speeches, though these were more numerous than ever before, but it included concerts and receptions, and excursions to many of the points of historic interest which cluster about Boston. Particularly to be commended was the schedule of hours of meetings, which gave the mornings to department meetings, the afternoons to excursions and receptions, and the evenings to concerts and general sessions. The attendance was so much larger than had been expected that nearly every meeting-room was crowded to overflowing. Hundreds of people were turned away even from some of the department meetings, and in at least one case an overflow meeting was held, all papers of that session being reread in another room. It was estimated that two thousand teachers attended one of the manual training sessions. When compared with the very few hundreds at previous meetings, this number was indeed remarkable.

Another striking feature of the convention was the gracious dignity, masterly repose and rare tact of the presiding officer, President Charles W. Eliot, of Harvard University. His administration of the affairs of the Association from beginning to end was a striking illustration of a man elevating and dignifying an office, not the office elevating the man. To see President Eliot preside at a great meeting of teachers, and to feel the power of his diction, is to make one glad to be a member of the same profession. His scholarly address on "The New Definition of the Cultivated Man," at the first general session in Mechanics Hall, was a fine example of his eloquence, and perfectly fit the occasion, the place, and the man. In this he contrasted the old-time gentleman and his qualities with the characteristics of the man of refinement and culture of to-day.

One of the general sessions was devoted to

MANUAL, TRADE AND TECHNICAL EDUCATION.

We are much indebted to Professor Arthur H. Chamberlain for the following report of that session:

Not the least interesting and valuable of the general sessions of the convention, was the meeting held in Mechanics Hall on Tuesday evening, July 7th. President Charles W. Eliot presided, the speakers being Calvin M. Woodward, dean of the School of Engineering of Washington University, St. Louis; Thos. M. Balliet, superintendent of schools, Springfield, Mass., and Henry S. Pritchett, president of the Massachusetts Institute of Technology. Professor Robert H. Thurston, of Cornell University, although scheduled to speak, did not appear.

A large audience gave an enthusiastic greeting to President Eliot when he arose to announce the general topic for the evening. Dr. Woodward, the first speaker, said that our present industrial and social conditions demand a broader secondary-school curriculum. To "knowing" must be added "doing," if the boy is to be fully educated. The engineers or mechanics of to-day may be as truly cultured as the man trained in the classics only.

The schemes of secondary and higher education have been planned, said the speaker, not with a view to the needs of the majority, but of the minority. The coming secondary school must enable the boy to discover the world and to find himself. A single course of study cannot do this. The establishment of manual-training high schools has in some instances doubled the attendance, and hence has been the means of increasing the attendance at higher technical and engineering colleges. A new set of pupils, too, is reached, and the lesson taught that education and skill dignify and adorn every occupation.

In introducing Superintendent Balliet, President Eliot drew attention to the fact that the first speaker had outlined the necessity for a change in policy and method of present day secondary education. The teaching of trades in the public schools President Eliot characterized as a step further in the present discussion.

Superintendent Balliet spoke from his experience. He dwelt upon the increasingly prominent place the economic and industrial forces play in the civilization of to-day. It is to education we must look for our adjustment to present day conditions, and to fit the individual to his new environment. The highly organized condition of nations was spoken of, and the extent and policy of the industrial and trade schools of Europe dwelt upon.

Springfield, the speaker said, had made an experiment in teaching trades at public expense. An evening trade school was organized in the manual-training high school shops some four years ago. The major portion of the students are either apprentices or journeymen in the various trades, and these, rather than non-tradesmen, are given the preference. Mechanical drawing, mechanics, applied mathematics, electricity, and the machine, plumbing, wood-turning and pattern-making trades are taught. Many different trades were represented by the three hundred and eleven students enrolled the present year. Residents of the city are given free tuition.

Superintendent Balliet believes such a school may be organized in the shops of any up-to-date manual-training high school.

Before presenting President Pritchett, of the Institute of Technology, President Eliot reminded those present that many western universities had for years given instruction gratuitously in various professional schools. The plan proposed for teaching trades at public expense was, he said, simply another phase of the same problem.

President Pritchett was warmly received. He had for his topic "The Part of the Manual-Training High School in American Education." He characterized the philosophy of education as being little changed from that of two thousand years ago, and we are still trying to realize the thought of Aristotle, when he said: "What is education, and how are we to educate, either with a view to perfect training or to the best life?"

The speaker claimed that the manual-training high school contributes more to the culture side of life than to the trade or industry phase of our existence; its ends are pedagogic, rather than craftwise. This state of affairs the speaker deprecated in some measure. The correspondence schools, with their many students, furnish to us an idea of what the manual-training high school could do if utilized to the fullest extent.

A plea was made for the introduction of drawing, both mechanical and free hand, into the curricula of all high schools. More has been claimed for the manual-training high school, however, than it can hope to fulfill. The standards of scholarship, too, have been here reduced, owing to the introduction of many subjects to be taught in a comparatively short time. The average boy, graduate of such a school, is inclined to rate his limited knowledge of shopwork as of "greater value than all the rest."

President Pritchett does not believe the knowledge gained in the manual-training room of more value than that received from contact with the natural life of the farm for example. Neither does he believe in the popular interpretation placed upon the phrase, "send the whole boy to school." "It has no significance," he says, "with respect to a manual-training school which it does not have with respect to any other well conducted school."

The speaker questioned the advisability of using the manual-training high school as an institution preparatory to the training of the engineer. He further stated that his own experience went to show that the graduates of city high schools are better prepared along the lines of general scholarship than are those of private high schools or of manual-training high schools. It will thus be seen that President Pritchett has clearly in mind the service the manual-training high school has rendered, not only, but he also recognizes its limitations. Such a school, he thinks, will not meet the demands of every boy. "In a word," said the speaker, "the study of the manual-training school suggests, as well as the study of any other American school, that those who have to do to-day with American education must turn their eyes, not so much toward the making of new schools for fitting men for college, as in providing simple and effective schools which may reach those who never go to college; and that, so far as pedagogic methods are concerned, it is not to a multiplication of such methods which we should look, but rather turn our faces and the faces of the American people toward simplicity, sincerity and thoroughness in education.

The papers and discussions were a real contribution to the cause of education. Such a meeting, such speakers, and such richness of thought and experience, should prove an inspiration to the teachers of the land, and will undoubtedly lead to more thoughtful study, open-minded discussion and intelligent experiment and application.

The sessions of the Department of Manual Training, held in the Old South Church, Copley Square, were remarkable in many ways. The attendance was very large at each session, sometimes more than filling all the seats in that large auditorium, thus indicating a wide interest in the subjects discussed; and one of the sessions, that on trade education, was especially marked by the many points of view of the speakers and the clarifying effect it produced in the minds of many in the audience. It was a timely contribution to educational discussion, and the credit for bringing it about belongs to the president of the department, Principal Charles F. Warner of the Mechanic Arts High School, Springfield, Mass. Mr. Warner received many congratulations.

The trade-school session opened at 9:30 on Tuesday morning. The first sub-topic was

THE DEMAND FOR TRADE SCHOOLS.

This was discussed from the manufacturer's point of view by Milton P. Higgins, formerly superintendent of the Washburn Shops of the Worcester Polytechnic Institute, and now president of the Norton Emery Wheel Co., of Worcester, Mass.; also by L. D. Burlingame, chief draftsman for the Brown & Sharpe Manufacturing Co., of Providence, R. I.; and from the educator's point of view by Professor Arthur H. Chamberlain, of Throop Polytechnic Institute, Pasadena, California.

Mr. Higgins opened his address by stating that, contrary to the hastily-formed opinions of many, the requirements upon the workmen have greatly increased in recent years. The introduction of modern methods of manufacture have not lowered the demand for skill, but have raised it. The mechanic must have superior training, and Mr. Higgins said that it is pretty generally agreed that manufacturers must look to schools for their future skilled workmen.

> The specific needs (on our part) regarding the education and qualifications of workmen are as follows: First, last and always, we are looking for *effective, productive, profitable skill.* The manufacturer will employ the skillful man at good pay, even if he be untidy, coarse, ignorant, profane and drunk on Sundays. I make this extreme statement to show, at the start, that any trade-school system, any education for the trades, in order to meet the reasonable needs and demands of the manufacturer, must make *skill* the central part of the enterprise. The educational system must start from the shop, and all other elements of the school must radiate from the shop, because the power and success of the pupil's life is to depend upon his shop knowledge and dexterity. The engineering college, the university, and the technical school may, for obvious reasons, be a school with a shop attachment, — but not so with the future trade school. That must be a shop with a school attachment. The system of education for the trades, to ever meet the needs of the manufacturer, must make *skill first.*

Mr. Higgins then reviewed the various types of American schools giving industrial training, in order to determine their degree of success or failure from the manufacturer's point of view. He considered first manual training in the public schools, next technical schools, then engineering colleges, and, finally, trade schools.

Regarding manual training in the public schools, we find that we really never had any good grounds for our expectations, — we find that all this outlay for shops and equipment is not intended to make workmen, or fit boys for the industries, or to develop useful skill, but simply to lay a "broad foundation for a better manhood," and possibly to help the boy who has not succeeded in the regular school "to find himself"; but these schools make no pretensions at helping the boy to do something with himself after he has found himself (poor boy!); and, furthermore, it is found that manual training in the public schools does not lead any greater number of boys to follow or seek a life of mechanical industry.

In the technical schools of the type of Pratt Institute, Mr. Higgins found more ground for hope. The manufacturers are able to fill many positions to their entire satisfaction, with graduates of these schools, yet their greatest need is not met by these schools. "The best sort of skilled workmen are not likely to come from these institutions until the methods of teaching skill are made more effective by making the mechanical practice a larger proportion of the course, the course somewhat lengthened, and the shop practice more real and thorough."

Concerning the engineering college, Mr. Higgins said that there is a difference in the methods and character of the shop practice, but even the schools doing the best shopwork could not be expected to furnish skilled workmen. "These schools are doing a higher work, but it is not a whit more important."

Referring to trade schools, Mr. Higgins said in part:

The schools represented by the New York Trade School and the Williamson Trade School are a forcible demonstration or indication of what is possible in education for the trades. At the New York Trade School the aim is intensely direct toward the attainment of working skill in the shortest possible course, and there is no attempt made for general education outside of lectures and the directions pertaining to the work in hand, and to a statement of those special principles directly underlying the skill which is being taught. The Williamson Free School of Mechanical Trades is not open to this objection, for the time in a four years' course is generaousy divided (about half and half) between work and study.

From a manufacturer's point of view, the organization of this school is nearly ideal, with one exception, and the results are, indeed, all that could be expected. The exception is, the unreal character of the shopwork. A thoughtful person visiting this school is most forcibly impressed with the enormous loss to the students and the financial loss to the institution when two hundred strong, energetic, interested young men are required to work metal and other good materials into excellent parts

of useful machines simply as practice, and to see the results of their painstaking, skillful labor either put into glass show cases or thrown into the scrap heap. So long as the endowment meets the financial loss, the school goes on, but cannot be enlarged by funds that might otherwise be utilized. However, the financial loss is not so serious, but the loss to the student, as compared with working upon real machinery and so getting the experience of four years, as well as better skill, is certainly very great, and this is a loss that I am confident can be remedied.

HALF-TIME SCHOOLS.

Mr. Higgins' only objection to the textile schools that have been established in the east, was on the ground that they give an education that is extremely specialized and narrow. He would have a boy get a general education while learning his trade, and would not expect him to begin to learn his trade until he was fitted for the high school. During the high-school period of four years, the boy would work in a real manufacturing shop, half of his time, and spend the other half in a department of the high school especially planned to meet his needs.

Though the manufacturer cares but little for anything in the workman beyond the skill to produce, we have come to understand that we cannot have the skill of the order and grade we require unless science and mental discipline is the basis of the skill and accompaniment of it; a modified high-school education is needed by the skilled mechanic. We have every reason to be satisfied with the work of the public schools, so long as they adhere to teaching such science and knowledge as is properly taught by books and otherwise in our schoolrooms, and, as there is evident willingness on the part of school boards to meet the needs of the industrial portions of communities, can we not expect them to make a half-time course, where one-half of the class can be in the schoolroom one-half of the hours in the week, while the other half of the class is at work in a shop? As for the shop instruction, since we give the highest credit to teachers and educators for the great work they accomplish in the high calling of teaching and giving mental training in all that pertains to the schoolroom, we do the school teacher no dishonor when we propose to delegate the shopwork to specialists. Do not let us ask a school teacher to teach trades, or a mechanic to teach school; if we do, both will continue to fail. In order to provide for successful shop instruction, we must have a real shop; the object may be solely educational, but the shop must be a productive shop. A real shop, in the hands of shop men, of manufacturers, is not difficult; but in the hands of teachers it is a burden, and something to be feared. Real, productive shops for teaching trades, and the hearty co-operation of the public school, will give us thoroughly skilled men with minds somewhat trained and disclipined in a four years' course.

The shop for instructing the half-time school pupils must be at present, owned and conducted as a private enterprise, incorporated as an educational institution with the avowed purpose of teaching certain trades in a real, productive, commercial shop, where mechanics of known skill and ability, for imparting skill and understanding regarding shopwork, are employed to make salable products with the aid of the students; and with the sole purpose and aim of producing a class of mechanics of the highest skill pertaining to the mechanic arts.

THE EDUCATIONAL TRADE SCHOOL.

Professor Chamberlain followed Mr. Higgins with a valuable paper, presenting the trade-school problem as it appears to a student of educational theory and practice. He began by pointing out that ideals are changing with reference to education, and especially in its relation to industry. It has been considered almost heretical to think of trade teaching, as existing side by side with so-called educational work. Education, for the most part has had no real, vital or instrinsic connection with life, and trade instruction, on the other hand, while being very practical, has been too narrow. What is needed is a broad, general training before specialization begins.

The trade school is to my mind essential, and its numbers should increase, but just as we must, if you please, *industrialize* hand work in schools, so we must *educationalize* the trade school. What I mean to say is this: The demand for trade schools carries with it the demand for a certain content in curricula for such schools, brought about in part by our intricate and intensive industrial system, specialized as it now is. The work must be educationalized by injecting into it the thought element, to a greater extent than has formerly been the case. As in dealing with traditional subjects, thought without action brings partial results only, so in the trade school, action, mechanical work, dissociated from the thought side is uneducational, and in that sense, not the best trade teaching. In a trade-school graduate is demanded, more and more, one who can perform his particular service not only, but one who can plan and initiate as well; who can through wise leadership guide others to successfully perform alloted tasks.

Mr. Chamberlain then considered briefly, American trade schools as they are today. He knew of less than ten such schools, and these contained less than 2000 boys. The vast army who fail to find in the common school that which is satisfying, or, at least, not in sufficient quantity or intensity to hold them, and no school of trade or mechanical practice opening to them, turn to the street. Even if they do find a way to pick up the elements of a trade by working in shops, they become only partially capable of following the explicit directions laid down for them.

The manual-training school graduate, on the other hand, while possessed of less skill than the boy of the trade, has back of his knowledge of practical things, something of the theory underlying it all, and can more readily modify his work to meet present requirements. He can also lay out, suggest, create, initiate new lines of action, which is the crying need of the time. Neither of these two classes of youth, however, seems to fit exactly the conditions as they are found to exist, or to fulfill the demands made upon them. They are too often misfits.

Mr. Chamberlain called attention to the work of the continuation schools of Germany, which have proven so valuable to mechanics. The work in these schools is of a somewhat general character, and for the most

part, of a theoretical nature. The results obtained in these German schools point clearly to a strengthening of trade-school work on the academic side.

At this point Mr. Chamberlain referred to what he called the "educational trade school." "I believe it is practicable, and that the time is upon us when the educational trade school is to come and contribute toward the working out of our educational problem, and that this school, while teaching to those who so desire a trade, will at the same time place within the boys' grasp an appreciation for and ability to deal with the most important and essential elements with which life has to do."

THE APPRENTICESHIP SYSTEM NOT DEAD.

These two papers were discussed by Mr. Burlingame. He spoke more favorably of the manual-training schools than did Mr. Higgins, and emphasized the value of the evening trade and continuation schools. He approved of the half-time school, but considered it "no simple task to carry through such a plan to success." Mr. Burlingame said further:

I feel we shall go away from this convention with a mistaken idea, if we go thinking the apprenticeship system is dead.

Two impartial investigations, to learn the facts regarding this matter, have been made within a few years. One by the editor of the "American Machinist,"[1] and one last year by Mr. E. H. Parks, for "Cassier's Magazine."[2] These included reports from several hundred machine-tool, engine and electrical machinery builders in this country, and show from seventy to eighty per cent. taking apprentices; about fifty per cent. of these being regularly indentured by a written agreement. In connection with the investigations, leading manufacturers expressed themselves as strongly in favor of and dependent upon such a system.

The late Mr. Lucian Sharpe wrote at the time of the first investigation regarding the system at Brown and Sharpe's as follows:

"From the ranks of our apprentices have been selected from time to time, those that have taken the most important parts in the management of our shop. In fact, we really do not know how we could get along without the help of our boys. They have learned our method of doing work, and are especially interested in the welfare of the business as well" * * * * * "While technical schools and manual-training schools are of great importance, it seems to us that nothing can take the place of a boy's being indentured to some first-class concern that will take an interest in him, and see that he faithfully fulfills a well-defined term of agreement to which he shall pledge himself. There is no system in vogue, and none that has been suggested that would take the place, in our works at least, of the apprenticeship system."

Mr. Parks says, in his investigation just referred to, speaking of the technical and trade schools, that "they have in a measure attempted to supply the lack of skilled workmen; but the results, while excellent, in many ways do not bring out a class

[1] American Machinist, Dec. 24, 1896.

[2] Machine Shop Number, Nov., 1902.

of men with the training and experience needed, so that at the present time it seems as if there was but one way to fill this want, and that, by returning to the old apprenticeship system, as nearly as it can be done in a large factory."

This statement by Mr. Parks will, no doubt, appeal to Mr. Higgins as an additional argument for the adoption of his plan.

At the works of the Brown & Sharpe Mfg. Co., even, though the work is specialized to a great extent, the boys have a varied experience in the four years of their apprenticeship, which includes lathe-work, drilling, milling, assembling, screw-cutting, scraping, planing and general work. A large number of these boys study evenings, devoting the time to drawing and mathematics.

The drafting room apprentices at the same works have six months of real shop-work included in their time of service; that is, in cases where they have not already had shop practice.

The conclusion we must draw from these facts is, that the apprenticeship system is alive today, and must be reckoned with in any discussion of the trade-school question.

I have often been consulted by young men, or their parents, as to what training would best fit for a mechanical life. I have usually recommended one of three courses, which one, depending on the circumstances.

There will be a fourth from which to choose when the school shop proposed by Mr. Higgins is in operation.

Let us consider each plan and its advantages. A boy leaving grammar school wants to fit himself for a mechanical life. His circumstances are such that he must be able to earn a living as soon as possible.

As a *first* plan, let us advise him to continue in school, taking an optional or manual-training course in the high school, fitting him as far as possible for his future chosen work; let him leave school at seventeen or eightenn, and serve a regular apprenticeship in a machine shop. This boy can support himself after he is eighteen, and can earn good pay after he is twenty-one.

Second: Let us advise that he start in the shop at once after leaving the grammar school—this conditional, on his being well grown and somewhat mature for his age. On completion of his apprenticeship, he leaves work and goes back to school for two years, say to a school of the Pratt-Institute type. His earning power has been about the same as in the first case, but his school work has been of a greater value to him, because he has known better what he needed to learn. It is the exception, however, for a boy who has once earned money at regular employment to return to school, so that discretion is required in recommending this plan.

Third: The boy serves an apprenticeship and goes to an evening school. By this extra application in evening work, he reaches about the same earning power as the others, but in a shorter time, and has been earning something ever since leaving the grammar school.

The *fourth* plan would be the prospective trade school and shop. This also, would give the higher earning power at an early age, as in the last plan. There would, however, have been only two years of shopwork, with correspondingly less skill, but the school instruction would have been more thorough than would be possible in evening work.

The boy on leaving school has to win his way with his employer from the beginning; while the boy already several years in the shop may have won the esteem and confidence of his employer, so as to be directly in the line of promotion.

The thought has been emphasized, in the previous papers, that modern conditions demand a higher degree of skill than was formerly required. This can be attained only by long training. In the drafting department a preliminary training is usually required before applicants are accepted as apprentices. We do not pretend to teach the rudiments of drafting; such teaching is legitimately school work, and thanks to our modern schools, is now well provided for.

It may be that if the standard of skill in the shop is to be raised, it will be by requiring a special school training preparatory to the service of a shop apprenticeship.

It would seem, at first thought, that a school course in drafting might be arranged that would bean equivalent of real work. That this has not been done to any great extent, leads me to reason that in schools for trades where costly machines and equipments are required and the materials used are expensive, it would be still more difficult to so conduct the work that students would attain much practical skill.

An objection to many graduates of our schools is, that they have a mistaken idea of their value. Many of them make good men after they have had experience, but they handicap themselves when, on leaving school, they are unwilling to start at the foundation, they thinking that in school they have already climbed high on the ladder of experience. The responsibility for this misconception may lie sometimes at the door of the teacher. It is perhaps natural that he should magnify the importance of his work. In fact, it may often seem to him necessary to do so in order to inspire the student to do his work well.

Other graduates have no aptitude for the work. It is hard for the foreman to dash the hopes of a young man, who has struggled through several years of study to fit himself for a line of work, by telling him he is on the wrong track and is not adapted to the work chosen. It has to be done repeatedly. The efficient instructor would have done it years before; indeed, one of the purposes of the trade and technical schools should be to determine the direction of the student's abilities, and to guide him into such employment as will make his services of the greatest value to himself and the community.

Educators have said that we are prejudiced against students. Why should we be? What we want is efficient, skillful help. As a simple matter of business, we take it where we can find it, and, as Mr. Higgins says, it is hard to find.

Most of the successful mechanical men of my acquaintance, that have come up from the shop, have obtained valuable help from some form of technical or trade education, in most cases from evening-school work, and still depend for reference on text books prepared for these schools.

In conclusion, I would say that the function of the trade school should be to extend the work of the manual-training school by a training in the skillful use of tools and in the operating of machines; teaching the underlying principles in such a manner as to fit the student for advancement as a skilled workman; or to fill the position of foreman, or designer, if his natural abilities be in either of these directions. Its office should be to give a preliminary and auxiliary training, shortening the time and increasing the value of an apprenticeship; also to help those that have missed early opportunities or that have the ambition and determination to excel.

The second sub-topic on the Tuesday program was

THE ORGANIZATION OF TRADE SCHOOLS

Discussion of this from the standpoint of a school superintendent was opened by Superintendent Thomas M. Balliet, of Springfield, Mass., whose address is printed in full on pages 1 to 5. Professor Arthur L. Williston, of Pratt Institute, Brooklyn, N. Y., discussed it from the standpoint of the director of a trade school. Mr. Williston pointed out that less than one-third of all the children who enter the schools in the United States ever graduate from the grammar school or its equivalent. He believed that the common schools have failed to accomplish what the nation has expected of them, and that popular education should be extended so as to give further aid to the vast number of individuals who do not get beyond the most elementary grades. More direct practical training would do this. Mr. Williston then said:

To have a system of popular education in the United States effectively reach the great mass of wage earners, we need to organize at least four types of schools to supplement the existing schools.

(1.) *Day Trade Schools* of a very practical character, where young men to whom another year, or perhaps two, of school is possible, can acquire technical skill and efficiency in any one of a very large variety of trades, giving them immediate help in securing profitable employment, and so grounding them in the principles underlying their work that they may hope soon to become intelligent and skilled mechanics.

Such schools may not aim to graduate finished mechanics, but they can turn out advanced apprentices, trained in method, understanding the relation between cause and effect and the simple principles of science as applied to their work, full of ambition, and skilled enough to make them sought by employers. In the short time available, what type of education could hope to do more?

(2.) *Elementary Day Technical Schools* — for those who can spend the necessary two or three years after completing the elementary schools — to teach the applications of science and art to all manner of industries.

The Lowell Textile School is an example of this type of school. It is well known that the truths and methods of modern science are immensely helpful to the leaders in the industrial world, but it has also been demonstrated that, if taught aright, they are no less helpful to the man in the ranks. These two types of schools will have a very large enrollment from those who otherwise could receive no further education.

(3.) *Evening Trade Schools* for those to whom further education during the day is out of the question — and the number of these will always remain very large, — to give them the practical skill necessary to enable them to become skilled mechanics and intelligent workers in the large number of trades in which they are employed during the day.

The course of instruction in these schools should embrace even a wider group of trades than the day trade schools. They should include not only the usual build-

ing and manufacturing trades, but also such trades as that of the tailor, the upholsterer, the lithographer, the engineer, the watch repairer, and many others besides.

(4.) *Evening Technical Schools* for young men of greater intellectual capacity than those included under No. 3, who are employed as skilled workmen, draughtsmen, clerks, and the like, and wish opportunity to study in those technical subjects which will help to broaden them in their various lines of work and give them instruction in those branches of applied science or art which are directly related to their several callings.

The practical advantage that would be derived from having trade and technical schools, with day and evening classes generally established throughout the land, would be almost beyond calculation, but their educational benefit in the development of intelligence, manhood and good citizenship would, in my judgment, be still greater. The demand for such schools is unquestionable, and at present in most places the only way in which this demand can be satisfied is through correspondence schools, which to-day enroll more students than all the colleges and professional normal schools in the United States combined. The large majority of these are mechanics and laborers, and to me it is a sad reflection of our national system of education that the earnest pleading for knowledge on the part of the wage earners of the land has become a profitable field for business enterprise.

With reference to the attitude of organized labor toward trade schools, Mr. Williston said:

Some persons fear the attitude of organized labor towards these schools, but my experience leads me to have confidence in its support. All unions of skilled labor desire to restrict admission to their ranks. And they are wise and right in wishing to make this restriction as rigid as they can. Every professional organization does the same. No lawyer can practice in this state until he has passed a difficult examination at the bar, and no engineer can obtain any business until he has finished a severe course of training, or completed an apprenticeship of practical experience even more difficult. The members of the unions realize that their power and their safety comes from having the gap between skilled labor and the unskilled, just as wide as possible, and any agency that will help to widen this gap by making skilled labor more effective and efficient, they will welcome, for they understand that with them, just as much as with the doctors, or lawyers, or engineers, the only lasting and effective restriction is that of education and ability. They will oppose any school that seeks to turn out large numbers of half-trained men, who will tend to lower their standard of average ability and capacity — and rightly; but I think we can safely trust the good judgment of the American workman to see in the school that helps to lift and uphold the standard of his trade, the most potent aid and ally that has been offered him.

WHO OUGHT TO SUPPORT THE TRADE SCHOOLS?

The discussion was continued by Professor Charles A. Bennett, of Bradley Polytechnic Institute, Peoria, Illinois, who believed in considering the obstacles in the way of establishing trade schools, as well as the end to be attained. He said in part:

There is unquestionably a demand for trade schools, but it is not clear who ought to provide them. Will the manufacturer? will the trade unions? Shall they be maintained by private endowment? or shall they become a part of the public school system?

A few have been established already by private endowment. If the demand grows more urgent I believe the manufacturers are likely to combine for the maintenance of such schools. In my estimation the trade unions are making a great mistake in not coming forward and establishing trade schools. A few trade organizations already do something in this direction. I am expecting there will soon arise some far-sighted leader among the unionists who will point out the great advantage of union control of such schools, and will start a wide-spread, but carefully regulated movement for trade instruction of the immediately practical sort. I now refer to training in trade processes and methods, not to work in applied science and mathematics such as is given in continuation schools. But the most vital question is, Shall the public schools of our cities and towns give this trade instruction? Some of the obstacles in the way of such a plan are the following:

1. Trade instruction of the kind in question seems to be opposed to the traditions of our American free-school system. It has been the aim of our public schools to give the general education needed by every man; and, with rare exceptions, no subject has been allowed in the curriculum unless it furnished a contribution to the general education of every boy and girl. In other words, each subject must have in it a large proportion of educative elements, substantially as valuable to one person as to another. On the other hand, the highly specialized knowledge or the "tricks" of any trade have not been considered a reasonable part of public instruction —certainly below the university.

2. It is contrary to the spirit of our public schools to allow a high degree of specialization at an early period in school life. In the words of another, "every boy's education must remain open at the top." He must ever be in line for something higher in education. I can conceive that it would be possible to retain this feature in a trade school, but it does not exist in some of the trade schools of the present day. Each pupil in an American public school should have the opportunity, so far as the school can control that opportunity, to receive the highest general education the public schools can give. No impassible barriers shall be thrown in his way.

3. Trade schools, if established at public expense, may produce a surplus of workmen in one line of activity at the expense of another. This is what the trades unions fear. They fear that such schools would not be regulated to fit their ideas of adjusting supply to demand. In a given locality the demand for tradesmen fluctuates more or less. It would be difficult to keep the supply from the school in harmony with the demand. The public school, as now constituted, does not have to consider this question.

4. There is danger of favoring one class in the commuuity at the expense of another. The manufacturer of machinery wants a school for the machine trades. If this be established, the builders will want a similar school for the building trades. Then the clay workers, and the textile industries, and the jewelers, and the barbers, and all the rest will want a school, or will have a "bone to pick" with their neighbors who have a school. The wire-pulling in school boards at the present time is not to be compared with what might take place if a half-dozen trades were clamoring for their rights and privileges.

5. The cost of such schools would be an important factor, and would render it impossible to have a school for each of the many different trades in a city of moderate size.

All these obstacles I see in the way of establishing municipal trade schools supported by public funds. I do not say that it is impossible to overcome these obstacles, but I do say they are serious obstacles that must be considered. Many of these would be more easily removed, though not different in principle, if the trade schools were to be maintained at the expense of the state, and distributed through the state where most needed.

I come from an institution where a pure trade school is flourishing. At Bradley Polytechnic Institute, we have a school of Horology that is well equipped and is doing good work. There we train watchmakers, jewelers, engravers and opticians, who are in demand all over the country. It is particularly significant, it seems to me, that this school pays nearly all its expenses from the income from tuitions. The demand for skill in the jewelry business is so great, that young men in large numbers find it profitable to come to us and pay a high rate of tuition for instruction. Many students cannot afford to follow the course through continiously, and so they come for a few months, which gives them a start in their trade; later they return to take up a special branch, as engraving or optics, devoting their entire time to one or two subjects. Often they return a third time, each time going away with increased skill of the most practical kind, which means, in turn, increased salary.

I recognize the need of trade instruction, but I believe that as a rule it should not be supplied by our public schools. In this connection I wish to express my belief in the ability of the manual training work to do all in this direction that should be expected of the public schools. Manual-training schools are doing much more to relieve the demand for trade schools than many persons are willing to admit. Most gratifying testimonies have come from leading manufacturers. And the manual-training schools are doing this without departing from the fundamental principles of our public-school system. Let such schools be multiplied, and let them get into closer and closer touch with local industries, and I believe they will meet the legitimate demand for industrial training so far as the public schools are concerned.

Mr. Arthur A. Hamerschlag, consulting engineer of the New York Trade School, gave in outline the plan and results of the system of instruction in the New York Trade School, founded in 1881 by Colonel Richard Auchmuty. This school was established to provide a substitute for the declining apprenticeship system, and gives direct, practical preparation for the leading building trades. "The record of its more than six thousand graduates, whose homes are in every state in the union, and are occupying positions of trust and responsibility, are sufficient evidence of the wide-spread demand and the urgent need for a concerted movement on the part of the educational fraternity in support of trade education." Mr. Hamerschlag deplored the unfriendly attitude toward the school often manifested by some of the labor unions.

The third sub-topic of the morning was:

TRADE SCHOOLS AND WORKINGMEN'S ORGANIZATIONS.

The first address was given by Mr. William H. Sayward, secretary of the National Association of Builders, Boston, Mass. This address appears on pages 6 to 10. The discussion of Mr. Sayward's paper was opened by Mr. Frank K. Foster, editor of *The Liberator*, who was followed by Mr. Samuel F. Hubbard, superintendent of North End Union, Boston.

Mr. Foster agreed with most of the statements made by Mr. Sayward, but he did not believe it to be true that thoughtful trade unionists are opposed to the trade school *idea*.

Opposed, with good reason, to certain specific incidentals of trade-school management and practice they unquestionably are, but the records of the trade-union movement of America may be thoroughly searched in vain for any declaration of opposition to the trade-school idea.

The trade unionist is not so blind as to fail to realize that knowledge is power. His contention is not against the man who knows, or with the institution which teaches greater knowledge; it is solely against the individual who, through gross ignorance or selfish malice, lends himself to the breaking down of that defense, erected laboriously and painfully, by associated labor against the forces in the industrial world which make for the lower levels of living.

The present attitude of trade unionists as to trade schools has an analogy in their attitude toward the introduction of labor-saving machinery, once so bitterly opposed by them.

Now, no up-to-date labor organization attempts to prevent the extension of machine work. Its endeavor — as in the case of my own trade, the typographical — is directed towards securing for the machine workman a portion, at least, of the benefits accruing from the cheaper processes of production, and in this it is in a degree successful.

The union recognizes the inevitable. It knows that the introduction of a machine which performs the work of several hand craftsmen causes distress for a time, during the transition period, the period of industrial adjustment, to many individuals who have had their trade capital abolished by new methods.

In like manner the trade union is willing to make the most of trade instruction when the instruction is honest and competent and not a mere recruiting-station for the forces which tend to neutralize the uplifting work of the union.

Trade unionists, as a class, are in a waiting and receptive mood as to the development of trade schools. They codemn certain concrete results of numbers of these institutions, their irresponsibility and their evil effects upon the welfare of the crafts, but I am certain that they are more than willing to lend their co-operation in making trade schools useful and responsible adjuncts to industrial life.

The discussion was closed by Mr. Hubbard, who spoke in part as follows:

The situation, briefly stated, is this: We who are outside the trades believe that workmen require the training of trade schools to properly fit them for their vocations. The workmen, individually and collectively, don't agree with us. To me, the attitude of trades unions toward trade schools is one of hope rather than of discouragement. The mere fact that trade schools are opposed by those whom they are designed to benefit is no new experience. Most reforms, whether of theology, education, politics, or what not, have had their strenuous opponents, but when once their adoption becomes general, the marvel is that there was ever any opposition to them. Trade schools, as has been shown, have been bitterly opposed and are still condemned by trade organizations, but that opposition no longer presents an unwavering front. We see workmen uniting with their employers in establishing and maintaining (in Europe) schools for the instruction of young craftsmen. True, this attitude on the part of trade organizations is as yet sporadic and not epidemic. Nevertheless it is, I am confident, an earnest of what is to be universal. The problem before us is to remove whatever opposition still exists; to bring workmen and employer into cordial and hearty co-operation in this question, and to make the trade school what it is designed to be — a help and a service in the lives of workmen and in the welfare of the community.

I have no doubt that some of the early promoters of the trade-school idea, in their attitude on this question, invited the antagonism of labor organinations. I find myself in entire sympathy with their opposition to trade schools that are run "wide open," admitting whomsoever applies. Trade schools, like the Williamson of Pennsylvania or the Lick School of San Francisco, which have a four years' course, day work, which give thorough instruction in the theory and practice of a trade, as well as instruction in academic branches, and whose graduates are received into the trades as junior workmen, to get the necessary practical insight, do not need to place the same limitation upon their applicants as do the evening trade schools.

I am of the opinion that all evening trade schools should be limited to those already engaged in the trades. My reasons are:

1. There should be no doubt in the mind of the boy that the trade chosen is the one he intends to follow through life. The best assurance of such decision is that he is already in the trade.

2. The boy so committed has an eye single to the purpose in view, and he will work to achieve it.

3. He has a chance during the day to observe in actual practice, and possibly to apply, the principles taught in the school; and being in the atmosphere of his trade all day, he more readily comprehends the work of the school.

4. Being in the trade, he does not have to look for a job on leaving school, which otherwise he would be obliged to do, with most discouraging results.

5. The union of shop and school eliminates from the mind of the pupil any extravagant notion of his value, preserves the traditions of the trade, and each is helpful to the other.

The work of the school should be in keeping with the best practices of the trade. To insure this, each trade taught should have a board of supervisors, composed of the best men in the trade, both of employers and of workmen. The standard of the work should be so high that a diploma from the school would be to the holder a patent of nobility among his fellow workmen. Existing trade schools, however, find it exceedingly difficult to maintain anything like the standard which

they deem necessary, because there is no standard set, except such as they may arbitrarily make for themselves. This arbitrary standard has no hold upon the pupil who chooses to disregard it. It is of value only to the pupil who is ambitious to perfect himself in his chosen trade.

The trade school cannot be held responsible for that numerous class who leave the school long before they have completed the required work and go out into the world of labor only half equipped to meet the requirements of their trades. This responsibility rests upon the trade organizations. Let them set a standard of admission into their ranks, and, be it ever so high, the trade schools will be the first to welcome it.

It is absurd to suppose that trade schools which have been or ever will be started by those outside of the ranks of labor will ever overstock the labor market. These experimental stations will continue to do their work of developing and refining the processes of trade training until such time as organizations of employers and of workmen shall realize their value, and reach out the glad hand to possess them and say: "This is our work; henceforth we will do it." When that day shall come, the National Educational Association will not be discussing "The Attitude of Trades Unions Toward Trade Schools."

THE RELATION OF ART TEACHING TO MANUAL TRAINING AND INDUSTRIAL TRAINING.

The second session of the Manual Training Department was a joint one with the Department of Art Education. The first paper of this session was on "Craftsmanship in Education," and was presented by Principal Leslie W. Miller, of the School of Industrial Art of the Pennsylvania Museum, Philadelphia. The speaker said that the adoption of craftsmanship as a part of general education, while implying almost a reversal of the old ideals, is really the most important educational reform that has taken place in recent years. "The triumph of the main principle involved is already assured, and it only remains to discuss methods and applications."

What is needed is not only the multiplication of manual-training schools, which are doing a splendid work, as far as they go, already, and the very general extension of provision for this kind of instruction to schools in lower grades, but the establishment of schools of professional grades in metal work, ceramics, woodwork, textiles, etc., which shall set high standards of production and attainment, which, indirectly by example and directly by the training of teachers, shall react on the lower and more general education, and promote a degree of industrial efficiency which is sadly lacking at the present day.

Mr. Miller prefers the term "professional school" to that of "trade school," because it leaves open, in a sense that the other does not, "some rather important questions of immediate function and ultimate aim." Speaking from the art standpoint, Mr. Miller said:

The foundations of taste are laid in respect for material and appreciation of function; style is the dignity with which genuineness carries itself. It must be

SIMPLE EMBROIDERY AND APPLIQUE WORK, TEACHERS COLLEGE, NEW YORK.

inherent in things as part of their very structure; it cannot be assumed like a mark, or stuck on like veneer. Abiding interest in things, then, is not to any great extent a matter of superficial ornamentation, and one of the worst mistakes which we have made in our efforts to make art instruction universal has been the exaggerated importance which has sometimes been given to purely decorative design, considered as surface ornament alone; and as something, therefore, which might be effectively studied without reference either to the object to which it was to be applied or to the methods or materials in which it was to be expressed.

Mr. Laurin H. Martin, of the Massachusetts Normal Art School, who led the discussion, agreed with Mr. Miller, and added the statement that no designer can think intelligently unless he has had actual work with different materials as a part of his training. He would have more handicraft work done in art schools.

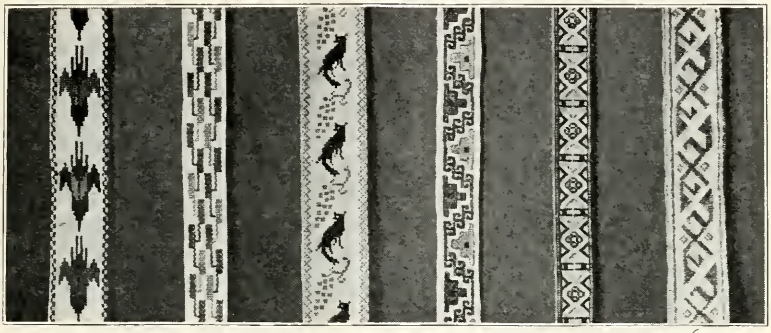
Mr. Walter S. Goodnough, director of art and manual training in the public schools of Brooklyn, N. Y., pointed out that "the craftsman of old was an artist, and artists were frequently craftsmen." The medieval towns and the art museums of Europe reveal the fact that the art spirit pervaded the work of earlier times more than that of to-day. Mr. Goodnough believed that the trend of events indicates that art will again permeate industry; hence the daily life and surroundings of the people. He found reasons for encouragement in the recent development in our larger cities. The great need of the hour, so far as the schools are concerned, is that the art teachers and the manual training teachers bring their two lines of work together.

Professor Alfred V. Churchill, of Teachers' College, New York City, emphasized this same point, when, in his paper on "Art Instruction as Related to Manual Work," he said: "The time has come when art and manual training must join hands."

Art and manual training have approached a common problem from widely different standpoints. Co-operation is seen to be a necessity. Before we can co-operate intelligently the art teacher must, for his part, understand the typical ideas of structure and material; he must know how things are made and put together. A few months' work in a shop will teach him more about function and material, than talking the rest of his life. At the same time I feel that there is crying need for competent exposition from the teachers' standpoint in this field. Its literature is very deficient.

On the other hand, the teacher of manual training must understand that there are certain definite qualities, which invariably appear in anythiny which has formal beauty; that these qualities rest on a basis of principles which can be taught; and that, until they are taught, the work will continue to affect the trained observer like an ungrammatical sentence. Here again is a crying need for competent exposition. Those who could write on this subject have a duty to perform to their fellow teachers.

Mr. James F. Hopkins, director of drawing in the public schools of Boston, who opened the discussion of Professor Churchill's paper, emphasized again the importance of thoughtful co-operation between teachers of art and teachers of manual training, and said that there must be a mastering of construction and materials on the part of the art teachers, and an understanding of principles of design on the part of the teachers of manual training.



TEXTILE ORNAMENTS MADE BY NINTH-GRADE PUPILS, BOSTON PUBLIC SCHOOLS.

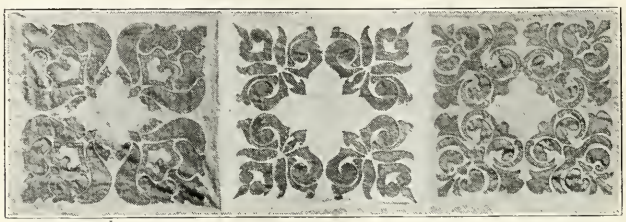
1. From Oriental sills.
2 and 3. Original designs.
4. From Oriental rug.
5. Original design.
6. From Oriental rug.

Mr. Fred. H. Daniels, supervisor of drawing, Springfield, Mass., said that "at present a rare teacher is he who understands artistic constructive design, and can carry out the design in wood or metal to the satisfaction of art and manual training critics." Manual training teachers should seek help from the art teachers, and the art teachers should work in the manual training shops — after this has been done the pupils can be properly taught. Mr. Daniels pointed out that the real difficulty with the pupils is that "through inexperience they have no definite constructive-design concepts." The necessity for illustrative material in teaching constructive design is very great. This material should include: *First:* A stereopticon with lantern slides, showing *(a)* constructive design in nature and its relation to the art of man; *(b)* good arts-and-crafts products of ancient and modern times. *Second:* Objects, good in design. *Third:* Printed illustrations selected from magazines, catalogues, etc.

The last number of the program was an illustrated talk on "Indian Basketry," by Mr. George Wharton James, of Pasadena, California. It was instructive, bright and refreshing — a fitting close to a long session.

A WIDER APPLICATION OF THE MANUAL TRAINING PRINCIPLE.

The third session of the department was a joint session with the Indian and Elementary Departments. The first paper was by Miss Elizabeth E. Langley, of the School of Education, University of Chicago, an abstract of which is printed on pages 11 to 17.



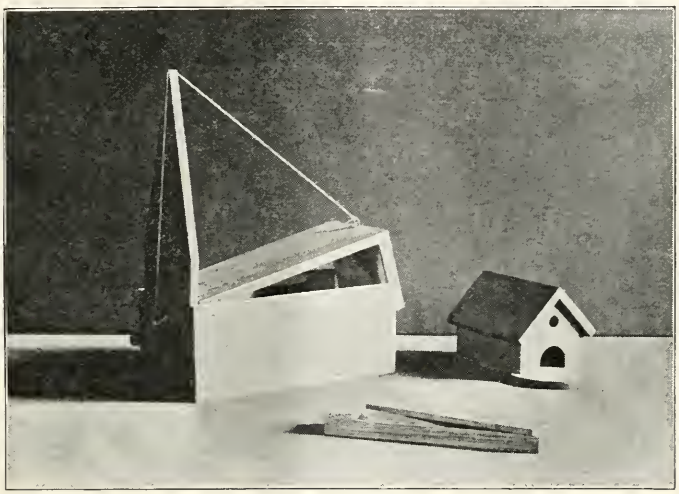
PILLOW FRONTS, MADE BY NINTH-GRADE PUPILS, BOSTON PUBLIC SCHOOLS.

"The Boy and His Handicraft" was the subject of a paper by Mr. George H. Bryant, of Newport, R. I. This paper looked toward the encouragement of handicraft work in the home. Outside of rural communities there is little to employ a boy's energies when he is not in school. Handicraft may supply this need. Teachers may help boys in their home work by consulting with them or having them report their home work, giving them encouragement and practical suggestions. The correlation of home and school work in handicraft may be developed very profitably to themselves and the household. They enjoy such work. It is play to them.

The discussion of the two papers was opened by Mr. Frank M. Leavitt, supervisor of manual training in Boston. He thought that it was hardly possible to carry out the ideal scheme outlined by Miss Langley under present conditions in large cities. Sometimes the kind of work proposed by Mr. Bryant, too, "is denied the manual training teacher by force of circumstances." But even with the more or less restricted course of study, the large classes, the small rooms, and insufficient time, Mr. Leavitt believed there is opportunity for a wider application of the manual training principles. This is found in the encouragement of the "individual initiative" of the pupils.

I confidently believe that here is to be found the most promising opportunity for the immediate improvement of our work, without throwing absolutely to the winds

that which we have again and again seen to produce excellent educational results. I mean the carefully planned course of study. Miss Langley has said, that the teacher who wishes to depart from the orderly progression of the sloyd should have himself the systematic knowledge and training which that course affords. It is equally true that where the work must be entrusted, as is often the case, to teachers of limited technical training and of little experience, the results will be excellent in direct proportion to the care and definiteness with which the course has been arranged. Only let it be clearly understood, that the course is to be considered merely as a point of departure, and that it may be easily set aside, when something more vital can be substituted.



BOX TRAP, BIRD HOUSE AND PENCIL BOX, SEVENTH GRADE, BOSTON PUBLIC SCHOOLS.

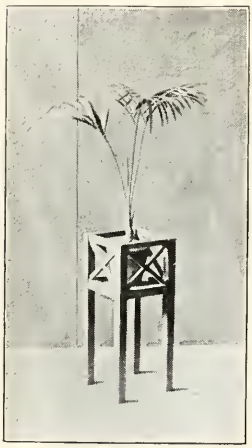
We are to make practical suggestions. What is more practical than that we, who are manual training teachers should go back to our work, no matter how restricted by rule and regulation, resolved that we shall modify our methods, even if following a prescribed course, so as to secure for our pupils a larger opportunity for self expression.

It seems to me that Miss Langely's paper is best summed up in her own statement, "Responsibility educates." Let us see to it that we as teachers do not take all the responsibility and consequently receive all the education.

The one thing most necessary — I had almost said the only thing necessary to enable a teacher to carry out Mr. Bryant's suggestions is, that he shall secure to the pupil a sense of personal achievement. The rest is mere detail. President Eliot said recently, "That is the best motive in all education—the joy in achievement." I have seen class work which made me wonder how the teacher could achieve such results. But let us not forget that it is the pupil who must achieve—not the teacher.

With the thoughts contained in the two papers, and represented by the two words "responsibility" and "achievement" clearly in mind, we cannot fail to widen our horizon and to secure for our pupils a larger development.

Superintendent Carroll G. Pearse, of Omaha, agreed with Mr. Leavitt both as to the value of a carefully planned course of study and the desirability of encouraging individual initiative. He believed that the child's initiative could be encouraged in connection with a carefully graded series of "exercises or undertakings."



FERN STAND, NINTH GRADE, BOSTON PUBLIC SCHOOLS.

Miss Abby L. Marlatt, of Providence, presented a forceful argument favoring hand work for high-school girls. Miss Marlatt said that "girls, more than boys, are handicapped through changed social conditions, which do not admit of the old home training in the industries. The present school training must remedy the wrong if the educated women of the future are to understand the coming industrial condition."

MANUAL TRAINING VS. THE MANUAL ARTS

This was the title of a paper by James P. Haney, M. D., director of manual training, New York City. He believed the term "manual training" to be narrow and insufficient. Present conditions call for a term with broader significance.

In little more than a decade an entire change has taken place in the educational situation. Genetic psychology has placed the child before us in a clear and scientific light. Increased knowledge of the child's physiological and mental development has taught us that motor and mental sides must develop together; that constructive agencies are the natural forms through which he grows, and that through constructive training he gains consciousness of his environment and learns the significance of his social relationships.

This change of ideas has markedly affected the curriculum and has placed motor training as an essential element in general education. The process of development in the grades is being reversed, and we may now observe the ideas of the kindergarten extending upward through the school. Manual-training ideas have thus been much affected thereby. The necessity for greater unity among the related branches has become apparent. We are thinking ourselves away from manual training as any special practice toward the view that looks upon it as a "principle" or "mode" of education. The name, however, has been identified with formal practice. As a name it is narrow and insufficient. A better term would be one recognizing requirements aesthetic as well as constructive. Manual training must become training in the manual arts. As such, the different branches should not be taught that technical ends may be emphasized. The desire for beauty should enter and be seen as an instinct of the race.

The discussion was opened by Miss Lillie Collamore Smith, of Brookline, Mass., who pointed out the value of having the altruistic spirit manifested in school, and how this can be fostered in work in domestic science. Continuing the discussion, Superintendent Calvin M. Kendall, of Indianapolis, spoke of the practical results. It improves conditions in the homes, and raises the standard of home life; it adds interest to the other studies in the school; it tends to keep boys in school longer.

One of the most enjoyable features of the convention to teachers of manual training and kindred subjects, was a reception given at Simmons' Hall, on Tuesday afternoon, under the joint auspices of the Boston Manual Training Club, The B. and S. Club, the Boston Sewing Teachers' Association, the Lake Placid Conference on Home Economics, and the New England Association of Teachers of Metal Working. Here one could meet the officers of the Eastern Manual Training Association and the Manual Training Department of the National Educational Association, as well as the leaders of manual training work in New England.

At the business meeting held on Tuesday the following department officers were elected for the coming year: President, Arthur H. Chamberlain, Pasadena, Calif.; vice-president, Charles L. Kirchner, New Haven, Conn.; secretary, Frank M. Leavitt, Boston. The president of the entire association for the coming year is John W. Cook, president of the state normal school at De Kalb, Ill. It is hoped by many that the next convention will be held in St. Louis during the Louisiana Purchase Exposition.

CHARLES A. BENNETT.

EASTERN MANUAL TRAINING ASSOCIATION.

THE tenth annual meeting of the Eastern Manual Training Association was held at the Prince School, Boston, Mass., July 6th and 7th, 1903. The meeting was opened by the president, Mr. Geo. H. Bryant, who expressed the hope that the action of the executive committee in bringing the Association once more to the east would meet with the approval of the members, as it had already received the generous co-operation of the school authorities of the city.

The first speaker introduced was Mr. Maurice P. White, of the Board of Supervisors of Public Schools, who delivered an address of welcome to the Association. After a brief reference to some of the beneficial results of manual training and its growth in this country, Mr. White quoted some remark on the subject by Sir James Crichton-Browne, who attributes much of the awkwardness, bashfulness, irresolution, etc., which we so often meet with, to deficient or misdirected muscular training, and holds that proper training of the muscles is conductive to breadth of mind, as well as breadth of shoulders. The speaker welcomed the Association in behalf of the School Committee, who had made liberal appropriations for the support of manual training; in behalf of the Superintendent, whose zeal in the cause of manual training had never

wavered during the past twenty years; in behalf of the teachers, who have heartily supported the work; and in behalf of the boys, who have received so much benefit from it.

ELEMENTARY MANUAL TRAINING OTHER THAN WOOD WORK.

A paper on this subject was presented by Mr. E. D. Hoyt, Principal of the First Ward Manual Training School, Allegheny, Pa. Manual training, he said, had become a factor in the education of the masses. We were once satisfied to know that it reacted upon the intellect, but are now coming to understand that we should look for a corresponding development of the feelings and the will. That there is a scale of values in manual training is evident when, by a change of occupation, we see careless, troublesome boys become thoughtful and earnest. "The conviction is growing upon me," said Mr. Hoyt, "that the essential purpose of elementary manual training is to offer to the pupil the incentive to will strongly. This end is gained by putting within his reach the means through which to accomplish that which he greatly desires. And the power to will strongly finds it fruitage mentally in attention and morally in self-control."

It was the object of the speaker to give suggestions which would be practical under ordinary conditions. Through the first four years boys and girls should have the same kind of work, having two to four lessons, of thirty or forty minutes, per week. The following suggestions were given for the distribution of work.

Ia. (First half of the first year). Sewing on perforated cards with colored yarns; making book-marks, box covers, mottoes, etc.

Ib. Raffia braiding and sewing, producing such articles as mats, bags, hats and bonnets. Colors should be introduced, giving opportunity for the exercise of individual taste.

IIa. Basketary, introducing raffia and reed weaving. Colors used.

IIb. Hand-loom weaving and cord-tying. Rugs may be made varying in size, proportion and color; also hammocks, nets etc.

IIIa. Paper cutting, folding and mounting. This helps the development of geometrical ideas. Instruction given by dictation. Children are trained in attentive listening, careful interpretation and neat manipulation. But little of such instruction should be given at first.

IIIb. Carboard construction. Mechanical drawing should be introduced here. Geometrical forms used in the construction of boxes, etc.

IVa. Mechanical drawing, including geometrical figures and working drawings. These may be used for Venetian iron work and work in thin wood in the following grade.

IVb. Clay cutting and modeling. A few lessons might be given to cutting geometric solids and household utensils in low relief. Permanency should be given to modeled work by firing or casting in plaster.

Mr. Hoyt would give sewing to girls in the fifth and sixth years and cooking in the seventh and in VIII a, and in VIII b, the making of garments with sewing machine. In the fifth year and thereafter, boys should work in a separate room. Their occupations might be distributed as follows: V a, wire bending, shaping lead, riveting tin, etc. V b, Venetian iron and sheet metal work. Time should also be found for making bridges of common type. Work in thin wood might be taken up in the sixth year joinery in the seventh and wood turning in the eighth. Scroll sawing with the velocipede

type of saw has proved very successful and seems an ideal form of manual training. Mr. Hoyt said in conclusion, "Elementary manual training seeks to so utilize and direct the natural impulses and activities of the children that they may become conscious of their own power as reflected by their handiwork. Normally this consciousness of power makes for well-being and character."

In discussing this paper, Mr. H. W. Hetzel agreed with Mr. Hoyt that manual training should be regarded as a process or method in general education rather than a detached subject. The interest of the pupil should be maintained by providing work which appears to him worth the doing. This can better be done by using various materials and processes. Mr. Hetzel had observed that in the Venetian iron work in most of our courses the structural element seemed to have been forgotten in the attempt to make beautiful scrolls. Lead, copper and other sheet metals might be used with advantage by boys from twelve to fifteen years of age. A boy feels that the work he sees mechanics doing is something worthy of imitation.

Mr. M. W. Murray expressed approval of the scheme outlined by Mr. Hoyt. He had observed the work of two classes, one working with cardboard and the other making baskets, etc., with reed and raffia. In the latter the work proved much more interesting to the children, and the articles produced were useful. In any line of work the things made by the pupil should be something really fit for use. Much of the work done in cardboard would fail to stand this test, and the same might be said of bent iron work.

Professor A. H. Chamberlain also approved of a variety of materials and processes in manual training. He would place clay modeling lower in the grades — say in the second or third. As for drawing, it should be given in the first grade or in the kindergarten. The formal side of the work should be kept in the background. The important thing is to make the work of vital interest to the child.

Mr. Hoyt would not have the impression prevail that he disapproved of drawing before the fourth grade. He had spoken only of mechanical drawing.

Mr. C. B. Connelley defended the introduction of what is known as Venetian iron work in the lower grades. When properly taught, the children get training in mechanical construction as well as in making beautiful forms. In Pittsburg and vicinity this work had been very successful.

Mr. A. U. Craig thought the material used in manual training might be determined to some extent by the home life of the pupils. Wood had been used too much to the exclusion of other materials.

A forcible paper by Dr. James P. Haney, on "The Deadly friend of Manual Training," which was read here, will appear in full in the January number of this MYGAZINE.

Professor C. R. Richards heartily concurred in the views set forth in this address. He feared that there were still those among manual training workers who believe that all has been done. We should rather feel that the process of development is still going on. The time has come when we should think of what we are doing rather than the way we are doing it. In planning our courses we should select things which are significant in this world of industry. Book-binding was suggested, for example, as better than so much paper and cardboard work.

Mr. Paul Kreutzpointner drew attention to the triple function of manual training — pedagogical, economical, and psychological. Pedagogically, it should harmonize the various phases of mind development with all the faculties of the hand, the

eye and the brain. Economically, it should be in harmony with our developing industries. Psychologically, it should strengthen the feeling of responsibility, promote co-operation, and help to counteract the tendency of our highly organized industries to keep the mind activities of the people in a rut. Mr. Kreutzpointner thought that teachers had not been sufficiently taught to stand on their own feet, and that, therefore, too much supervision was required. He held that more attention should be given to construction and less to art, and also that the necessity still exists of fighting against the utilitarian tendency.

The afternoon session was opened with an address by Dr. E. E. Brown, of the University of California, on

MANUAL TRAINING IN SECONDARY SCHOOLS.

In this paper the author deals with the relation of the culture idea to the vocational purpose in manual training. In the seventeenth century William Penn proposed to have the children of Pennsylvania learn trades. Similar ideas appeared from time to time after the colonies became independent. Between 1820 and 1840 there flourished the manual labor schools, formed after the type established by Fellenberg in Switzerland. Of these schools Dr. Brown said: "Much stress was laid on the very simple and definite purpose of enabling students to pay their own way by work in the shop or field. But back of this was a fine sentiment which sought to maintain some sacred marriage-relation between work-a-day employment and the higher life." The later movement of this class, known as "manual training," had its beginning in the decade in which our Centennial Exhibition was held, since which time its progress has been variable but continuous. The early advocates of manual training grounded their case solely upon the educational, or "cultural," value of the work, but now it appears that school men generally have come to a more adequate appreciation of the significance of vocational training. The American people have stood for liberal culture in the schools, and with the demand for such culture comes the further demand that the things a man does shall be better done. Are we not, then, almost ready to say that training for character and intelligence must eventuate in training for specific function or fail of its fruition? There has been a sharp distinction between the work of the secondary school or college and that of the professional school, and no less between the training a boy receives in the grammar or high school and that which he must have in preparation for a trade. In either case a remedy seems possible through provision for transitional divisions of the complete course of study. Manual-training high schools partake in a measure of this transitional character.

In summing up, Dr. Brown said: "We should consider any man's schooling incomplete until it includes an adequate amount of both general and vocational training; that these two should be distinct in character, and each as perfect as possible of its kind; that the two should be intimately bound together, possibly by some connecting or overlapping course of a transitional character, in order that each may reinforce the other, and that the learner may not suffer from a disjointed course of instruction."

Mr. Geo. F. Weston, Principal of the Providence Manual Training High School, followed with a paper on

THE RELATION OF MANUAL TRAINING SCHOOLS TO THE COMMUNITY.

Mr. Weston believed it to be the duty of the state in its compulsory education laws, to provide such courses as will bring the greatest contentment and prosperity to the community. The happiest people are the industrious people. In our large cities there are few opportunities for boys and girls to learn the meaning of industry unless the school of mechanic arts opens the way. Activity is the natural condition of child life. This is first a natural expression of growth. Later it will find scope only in play or acts of lawlessness if not guided and directed by some such means as the manual-training school. No more wholesome athmosphere can prevade a community than the spirit of pride exhibited by a boy in showing the results of his labors to parents and friends. After summing up the characteristics of good citizenship the speaker continued, "Theoretically, then, the manual-training school comes nearer being the people's school than that of any other type, inasmuch as all the elements of good citizenship are included in it."

A recent bulletin issued by the commissioner of education was quoted, showing that the graduates of manual-training schools are eagerly sought to fill places of responsibility and trust. Brown & Sharpe, who set the standard for the world on fine measuring tools, give credit of from six months to eighteen months to manual-training graduates. "These favors", said Mr. Weston, "are granted to graduates of manual-training schools, not because they have learned certain phases of wood or iron work, but because they have learned to follow directions with care and good judgment, and to work persistently towards a given end."

The fact that the percentage of pupils leaving without completing the course is greater in the manual-training high school than in the classical school, would appear to the disadvantage of the former, but it was explained that many enter the manual-training school who, had this opportunity not been open to them, would not have gone to school at all, and are making the most of their time while looking for an opportunity to go to work.

Mr. Weston would not have the trades taught in the school. He says, "We are building much more broadly if we so equip our boys that they can find their way into any line of our versatile American life, or into higher institutions of learning, either technical or professional." With regard to the education of girls, he says, "I believe it (the manual-training course) to be the best possible for the majority of girls. * * * One of the most important factors in a community is the cultured, scientific housewife. * * * Whatever the community owes the school for its training of boys, it owes quite as much for the training offered to girls." As a social force, the manual-training school was commended as tending to close the breach between an aristocracy of education on the one hand and a plebeian order of labor on the other.

Mr. H. E. Cushman, Treasurer of the Morse Twist Drill & Machine Co., who was scheduled to speak on

MANUAL TRAINING IN ITS RELATION TO MANUFACTURING INDUSTRIES,

submitted several letters from manufacturers of whom he had taken pains to make inquiries on the subject. A communication from Mr. C. F. Lawton, superintendent of the Gorham Mfg. Co. works, dealt with the question at some length. He alluded to the difficulty of manufacturers and professional men understanding each other. Experience indicated that a boy should begin his life work at the age of sixteen or

seventeen. If before this he can absorb any artistic knowledge or manual training, it is so much to his advantage. "The difficulty with the manual-training schools is," says Mr. Lawton, "that they take the most valuable period, possibly from the fifteenth to the nineteenth year, and teach the boy a conglomeration which amounts to little more than a smattering of knowledge." The Gorham Co. had not been successful with manual-training school boys as apprentices at the trade (silversmith's), but had found them good in positions "demanding executive ability, tact and slight commercial knowledge."

Mr. R. A. Jenckes, superintendent of the General Fire Extinguisher Co., reported the six young men in their employ, who were graduates of manual-training schools, as the most satisfactory of any draftsmen they had employed. He believed their training had made them worth from 25 to 50 per cent. more than they would otherwise have been. They had not, however, been sufficiently trained in spelling and writing to meet ordinary business requirements.

Another letter reported that manual-training school graduates had given good satisfaction. The instruction they had received in manual work seemed to be superior to that in the regular school branches.

The B. F. Sturtevant Co., of Boston, reported having had considerable experience with manual-training school graduates. They had found them, as a rule, far better equipped than the average boy, for taking up the work.

Mr. H. R. Towne, of the Yale & Towne Mfg. Co., expressed a high opinion of the usefulness of the manual-training schools, which go far towards supplying the deficiency created by the decline of the apprenticeship system. Such schools should receive the hearty support of the people.

The testimony of the Belcher & Loomis Hardware Co., of Providence, was favorable to manual-training graduates as salesmen. They had had no experience with the boys in mechanical work. It is their practice to give them preference over other applicants of equal natural ability.

The experience of the Morse Twist Drill Co. had been so limited in the employment of graduates of manual-training schools that Mr. Cushman had nothing to add to the testimony of the writers quoted, but he would make a few practical suggestions. First, the young man leaving school should be taught that he is about to begin his course in the school of experience, and he cannot begin at the top. Then he should endeavor to find out just what line of work he is best fitted for and bend his energies to that. He should also observe a becoming deference to older mechanics. This, besides being the only right way from an ethical point of view, will generally be found the better policy.

Mr. C. F. Warner being unable to be present for this discussion, the president called upon Professor Schwamb, of the Massachusetts Institue of Technology, to speak on the subject.

Professor Schwamb referred to the charge of inadequate training which had been noticed in some of the letters read by Mr. Cushman. At the Institute of Technology it had been the practice to excuse graduates of manual-training high schools from all work in the mechanical laboratories without examination, but it was found at the close of the course that these students were not generally as well fitted as others, and the practice was discontinued. High-school students were not as well developed, and could not be expected to learn as much in a given time, as Institute students. The

speaker thought that the work of the high school might be improved by teaching students the common-sense method of getting results with the least expenditure of of time and labor.

Miss Alice S. Hunter, of the Public Industrial Art School, Philadelphia, desired to say something for the 85 per cent. of school children who never reached the high school. It is during the grammar-school age that they are most in need of manual training. Miss Hunter defined manual training as "skill and dexterity of the hands under the control of the mind."

Mr. F. B. Ferson of the Chicago Manual Training School, agreed with Professor Schwamb as to the deficiencies of high-school students. He had found difficulty in getting teachers properly fitted for the work. He had also found students from public schools all over the country who appeared to have lacked proper instruction in the ordinary school subjects. The speaker deplored the fact that the requirements of the higher schools were becoming year by year more rigid. He hoped the Association would use its influence to reduce them.

The president here announced that, in response to an invitation from the Society for the Promotion of Engineering Education, a committee of the Association had been appointed to take part in the consideration of

STANDARD DEFINITIONS OF COLLEGE ENTRANCE REQUIREMENTS IN MECHANIC ARTS.

Professor C. R. Richards, for the committee appointed to consider this question, submitted a report embracing the following recommendations: That the definition be constructed upon a three-year basis; that the minimum in each of the three branches — wood working, forging and machine work — be approximately one hundred and twenty periods, assuming that a period represent not less than forty minutes; that mechanical drawing be given credit as a part of this requirement and that its title be Shop Practice and Mechanical Drawing. The report continues:

In accordance with these considerations we propose the following definition:

In order to present shop practice and mechanical drawing as a college entrance subject, the applicant must have devoted at least five hundred and forty periods to such work in a secondary school. This amount should represent at least one hundred and twenty periods in each of the three following groups. The remaining time may be represented by further work in these groups or in mechanical drawing.

First: Woodwork.

(*a*) Joinery: — Systematic practice in use of the principal carpenter's tools.

(*b*) Turning and Pattern Making: — Plain and ornamental turning in hard and soft woods. Making of typical patterns.

Second: Forging.

Elementary processes of working iron and steel; tool dressing, hardening, tempering, annealing and case hardening.

Third: Machine Work.

(*a*) Benchwork: — Practice in clipping and filing cast and wrought iron and steel.

(*b*) Machine Tool Work: — Practice in typical operations on engine lathe, drill press, planer, shaper and milling machine.

(Signed) { C. R. Richards. W. E. Roberts. C. H. Morse.

Professor C. A. Bennett suggested that, though this report fully covered the matter which the committee was appointed to consider, it might not have been out of place to offer some suggestions with regard to advance credits. The report still leaves us in some uncertainty as to just what credit our students would get at the various institutions. The Society for the Promotion of Engineering Education should put clearly before the preparatory schools just what ought to be a proper entrance credit subject and what a proper advance-credit subject.

Professor Richards, in reply, said that, while Mr. Bennett's point was certainly of interest to all engaged in manual-training high school work, it seemed to relate entirely to the attitude of the college or engineering school, and was beyond the scope of the inquiry for which the committee was appointed.

On motion, the report was accepted.

The president opened the second day's proceedings by introducing Mr. James P. Munroe, who would present a paper on

THE EDUCATIONAL BEARINGS OF MANUAL TRAINING.

Mr. Munroe said he desired to speak particularly of the bearing of manual training upon co-ordination, creativeness, culture and character. It is now generally conceded that co-ordination of the physical, mental and spiritual powers is at the basis of all real education, and this co-ordination cannot be complete so long as that side of the physical, mental and spiritual nature, which can be reached only by manual training, is left out of account. Every manual process which requires co-operation of mind and muscle is an important step forward in that general co-ordination which is the main end of all human education.

Of higher utility is the power of manual training to bring out individuality, to awaken a desire for learning, and to stimulate the will. Literary creation was the only avenue afforded to pupils in the old courses of study to develop their originality, taking the form of "compositions" in the school and Latin verse in the college. "In both," said Mr. Munroe, "the creative element was about as genuine as in the conversation of a garrulous parrot." In manual training, however, we simply employ the natural instinct of a child to use his hands. The most pressing question is how to save the child's individuality — how to keep him from becoming a mere cog in the social machine. The first step in this direction should be to secure smaller classes with good teachers, but a second step is to infuse into the programs much manual training of many kinds.

Manual training bears an important relation to culture. He whose hands as well as his memory and judgment have been trained, and who has had some experience of what the industrial processes involve, is a broader, more liberal, more all-round man than the one who has simply delved into literature, philosophy and abstract ethics. "Culture, in the modern understanding of it, is the science and art of living wisely and nobly with and for one's fellow men."

Manual training has also an important bearing upon character. The transformation of material into shapes originated in the mind of the worker tends greatly to strengthen the will, and a well-formed character is one in which all thoughts, motives and actions are under the control of a well-balanced will.

In order to fulfill its function in co-ordination, manual training should be continuous from the kindergarten to the university; to rightly stimulate creativeness it should deal with things useful and beautiful; to fulfill its culture function, it must be in touch with

the pupil's life interests, immediate and remote; to have a good influence upon character, it must stick to honesty and truth.

As one who could survey the educational field from the outside, Mr. Munroe pointed out a lack of continuity and purpose in manual training in the years between the kindergarten and the secondary school. "In this," said he, "is neither cohesion of plan nor co-ordination of result." He also advised the representatives of manual training to stop apologizing and, if necessary, come out and fight. "Being practically masters of the educational field, why longer maintain the fiction of academic uselessness, why longer declare that manual training intends to be only disciplinary, not economically serviceable?" In conclusion, the speaker declared that manual training has a fight to wage against sham and hypocrisy of all kinds; against "the absurd distinction between the arts called useful and the arts called fine," and urged the importance of employing only broadly educated and thoroughly trained teachers.

The discussion of this paper was opened by Miss Hunter, who declared that Mr. Munroe had touched the vital point when he said that manual training should be continuous from the kindergarten to the high school. Miss Hunter feared that a majority of those present were chiefly interested in high schools, but she wished again to plead for the eighty-five per cent. who never reached the high school. We should give these children something that will develop their natural powers of observation, of action, of reasoning, of judgment — that will make them skillful, industrious and observant of the beautiful things around them.

MECHANICAL DRAWING AND ITS RELATION TO PRACTICAL SHOP WORK.

Mr. L. D. Burlingame, of the Brown & Sharpe Mfg. Co., in a paper on this subject, described the draftsman as an interpreter. First, he is the interpreter *to* the shop; secondly, the interpreter *of* the shop, and thirdly, the recorder *for* the shop. In the old days the inventor stood over the pattern maker and had the pattern worked out by the cut-and-fit method. Now the draftsman comes in as interpreter, giving the smallest details for the guidance of the machinist. It is difficult to make the information on a drawing so clear that no one can misunderstand it. The multiplication of lines and figures often tends to cause mistakes, rather than to prevent them. The value to the draftsmen of some practical work in the machine shop is recognized in the Brown & Sharpe Co's. works, where apprentice draftsmen spend a part of their time at the machines. The machinist is also benefited by a knowledge of drafting and mathematics. Mr. Burlingame concluded by saying that he would not advocate making the manual-training course in drawing a mere apprenticeship for the drafting room, but he believed it should lay the foundation upon which the best practical work might be built.

This paper was discussed by Mr. W. C. Holden, of Hartford, who spoke of the difficulty, in planning a high-school course, of getting in all the different lines of study and giving sufficient time to each. All who were interested in high schools should work towards uniformity of practice in this matter. The advantage of giving such practical training to mechanical-drawing students as has been outlined in Mr. Burlingames's paper was evident, but was utterly impossible in the time at commaud.

Professor L. F. Rondinella, of the Central Manual Training School, Philadelphia, spoke of the importance of mechanical drawing as being the connecting link between mechanics and mathematics on the one side, and the constructive laboratories on the other. The schools afford a good opportunity of making the drawing department the

interpreter for the shop and of the shop. The third relationship however, that of recorder of shop data, would find little application in the work of the school. Teachers should be familiar with shop processes and impress upon their students the ways in which several related branches of work may help or hinder each other.

Miss Katherine B. Camp read a paper on "Some Social and Scientific Values of Domestic Science," which is reserved for publication in full.

Miss Irene McDermott, to whom the discussion of Miss Camp's paper had been assigned, desired to yield the time to two members of the Lake Placid Conference —Mrs. Lincoln and Miss Marlatt.

Mrs. Lincoln related several incidents in her experience, showing the practical benefits derived from instruction in cooking and other household occupations, and the widespread need of such instruction. Former students had expressed their appreciation of the value of the lessons they had received. One had taken the position of matron in a hospital, and afterwards that of steward, in order to get practical experience which would be of service in teaching. The spirit of this student was contrasted with that of some whose only ambition is to get the diploma.

Miss Marlatt spoke of the application of science to domestic occupations. Teachers of chemistry and kindred sciences might make more of their opportunities of applying science to everyday affairs. The making of yeast, for example, is an interesting problem in chemistry, and it should be of interest to boys as well as girls. There is a broad field for the application of the social science and the ethical science, as well as those included under the terms physics, chemistry and biology.

Referring to Miss Camps's discussion of the social value of domestic science in the school, Mr. H. S. Tibbits held that the work cannot be carried through the different grades under the same conditions. The class teacher may do all the work in the lower grades, but it becomes necessary somewhere to employ a special teacher. Below the seventh grade is the period of the play activities. Then it is suitable that boys and girls should participate in the same kind of work. After that, specialization seems quite legitimate. The arts most likely to be followed in actual life are the ones which should receive the first consideration.

BUSINESS MEETING.

The secretary-treasurer reported that the proceedings of the Association at the meeting of 1902 had not been printed owing to an accident, resulting in the loss of much of the material, but that some of the more important papers would be incorporated with the proceedings of the current year.

In order to carry out the work of the Association satisfactorily more money was needed. The balance in the treasury would be materially augmented if members who were in arrears would meet their obligations. On motion the report was adopted.

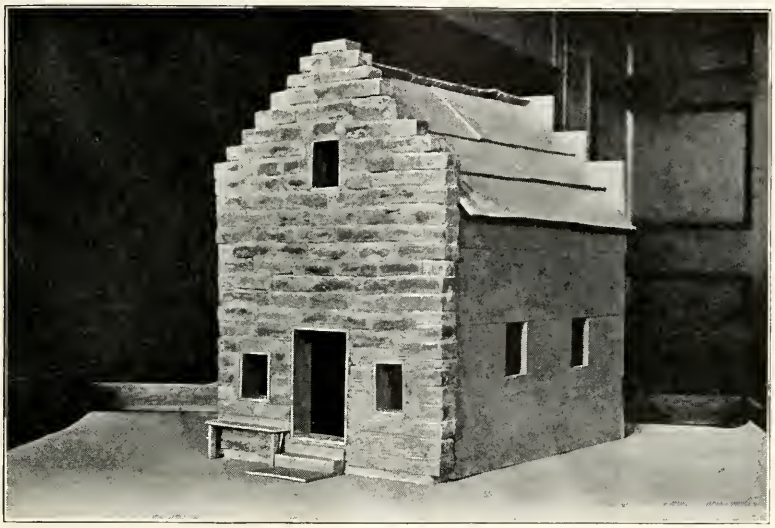
Pursuant to notice given at the previous session, Mr. W. F. Vroom moved an amendment to the constitution providing for the expiration of membership with each fiscal year, and renewal of the same by payment of the annual fee. The motion was carried.

Officers for the ensuing year were elected as follows: President, Louis Rouillion; Vice President, F. M. Leavitt; Secretary and Treasurer, C. B. Connelley. Members of Executive Committee: Dr. Jas. P. Haney, Miss Katherine B. Camp, Geo. H. Bryant.

Philadelphia was suggested by Mr. Hetzel as the next place of meeting. On motion the matter was referred to the executive committee.

Before the final adjournment the meeting passed a unanimous vote of thanks to the local committee for their very efficient labors in providing for the convenience and entertainment of the Association.

William F. Vroom.



EARLY DUTCH HOUSE. MADE BY THIRD-GRADE CHILDREN, TEACHERS COLLEGE, NEW YORK.

THE EXHIBITS AT BOSTON.

If photographs are to be used exclusively for the exhibits of the Eastern Manual Training Association, as they were at Boston for the first time, it is to be hoped that our schools will respond more generally to this method. Less than a dozen localities were represented. Of these, the work at Springfield and Cleveland showed successful attempts on the part of pupils, in modifying the design of given models. The work of Teachers College maintained the high standing it long since achieved. A prominent feature of this work was the study of mechanical appliances in the world of industry; e. g., a pile-driver, a steam shovel, a railroad bridge, car, and car derrick. The work in forging and sheet-metal, of the second and third high-school years as applied to lanterns, lamp shades, candlesticks, and irons, and like useful articles was especially interesting. The study of primitive life and occupations was illustrated in the work at Springfield, the Maryland State Normal School No. Two, and at Teachers College.

The excellent carving and cabinet work of certain volunteer classes at Jamaica Plain, suggests that the public is awakening to the fact that its school equipment can be still more efficiently used in ministering to the needs of other than regular day pupils

The manual training work of the Boston schools was thorougly displayed on three floors of the Rice School. Clay modeling, paper construction, sewing, gardening, and woodwork were represented. Some of the simple decorative borders in cross-stitch, shown in the sewing exhibit, deserve mention, especially when compared with ornaments bought at a store and sewed on. What could be more appropriate decoration for a little girl's white apron than a neat hem above which is a conventional border of blue or white stitches? Though the fundamental course in woodwork is sloyd, the larger part of the exhibit consisted of projects. Both in wood and paper, inventional work was strongly encouraged, but in going through the exhibit one somestimes felt that a discordant note had been struck in the decoration of the models.

PRIMITIVE SHELTERS. MADE BY FIRST-GRADE CHILDREN, TEACHERS COLLEGE, NEW YORK.

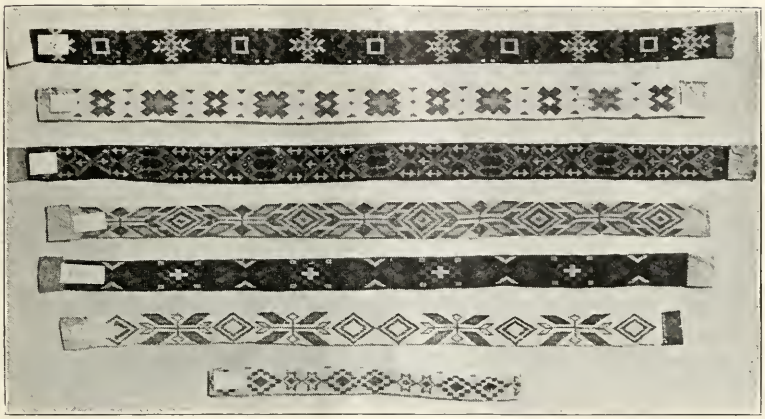
In the exhibition of art work from the Boston schools, found in the Public Latin School, were several commendable pieces of craft work. Among these were some textile ornaments and pillow fronts done by ninth-grade pupils, also some head work done by pupils of one of the lower grades. One of the high schools showed some unusually good pieces of colored pyrography work on wood and leather.

In the Rogers Building, the Indian Department of the N. E. A. had an extensive exhibit representing two hundred and fifty schools. This ranged from crude primary work to the skilled industrial work of Carlyle and Haskell — from their own native occupations to the latest courses in manual training. The former class of work was by far the more interesting, and one is gratified by the assurance that it is supplanting the latter.

A promising feature in the exhibit of the Massachusetts Normal Art School was the handiwork in leather and copper. Here were beautiful things actually wrought, not merely designed.

There were several other small exhibits scattered about the city. Among these was the Mary Lowell Stone home economics exhibit, at Simmons Hall, under the auspices of the Lake Placid Conference. If all the exhibits could have been in one central building they would have become a notable feature of the great convention.

HARRIS W. MOORE.



INDIAN BEAD WORK, TAUGHT BY A NATIVE TEACHER, CHEYENNE SCHOOL, DARLINGTON, OKLAHOMA.

BREVITIES.

MANUAL training is now given entrance credit by the College of Liberal Arts of Northwestern University. It can be substituted for physics, chemistry, botany or biology.

AT the commencement exercises of Washington University last June, the honorary degree of Master of Arts was conferred upon Mr. Gilbert B. Morrison, principal of the Kansas City Manual Training High School. Washington University has given only eleven honorary degrees during its existence; a great honor is thus conferred on Mr. Morrison.

MR. W. H. MURRAY has collected a large amount of data from schools in different parts of the country concerning the amount of time devoted to manual training in grades below the high school. As might be expected, there is great variation. He finds that the average number of hours per week in all grades in the cities and towns from which he received reports is 6.91.

AUGUST AHRENS has returned to his former position in the State Normal School at Millersville, Pa. Since he left Millersville he has spent a year at Harvard University.

MR. CLARENCE A. CHANDLER, for several years superintendent of the Washburn shops, connected with the Worcester Polytechnic Institute, has resigned his position to engage in the manufacture of cotton-oil machinery. His place has been filled by the appointment of Mr. W. W. Bird, a graduate of the Institute in the class of '87. During Mr. Chandler's administration a large and admirably equipped modern foundry has been added to the shop facilities of the Institute.

CHARLES B. HOWE, formerly supervisor of manual training at Hartford, Conn., who has been studying at Cornell University the past year, has accepted a position with the Deane Steam Pump Co. of Holyoke, Mass. By this action a valuable man has left the manual-training fraternity.

JOSEPH PULITZER has given $2,000,000 to establish a school of journalism at Columbia University. A new building to cost $500,000 will be erected, and an advisory board will be nominated by the donor.—*The School Journal.*

A NEW manual-training department has been established in connection with the public schools of Racine, Wisconsin, and there is much interest in the work and a bright outlook. Twenty-five hundred dollars was appropriated for the purpose, and a building formerly used for a ward school has been fitted up for the work of both boys and girls. Pupils from the seventh and eight grades of the nine ward schools take the work; also classes from the high school in which a manual-training course has been established. Mr. E. H. Wilmarth, lately of the Stout Manual Training School of Menomonie, Wis., has charge of the woodworking and drawing, and Miss Florence D. Barber, of the Iowa State Agricultural College, has charge of the domestic science work.

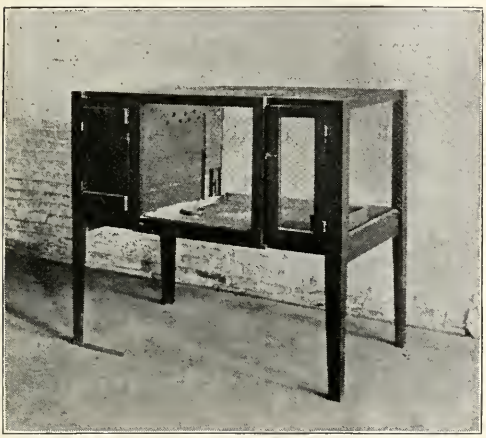
FRANK H. BALL has been appointed director of industrial training in Porto Rico. This ought to be a very fortunate appointment, for Mr. Ball has had a broad experience and part of it has been in the South. He began his shop experience in the foundry of the Crompton Loom Works, Worcester, Mass., where he began to serve his time as an apprentice. Before the full time agreed upon for his appreticeship had expired, he was made foreman of the foundry. This did not satisfy him, and he studied at the Ringe Manual Training School in Cambridge. Since then he has taught at the Worcester Polytechnic Institute; Teachers College, New York; the Laboratory School in Chicago; Togualoo University, Mississippi, and the Throop Polytechnic Institute in California. He has been a close observer of social conditions wherever he has lived, and has been particularly successful in dealing with street boys in New York City and in Chicago, where he was for a time a resident worker at Hull House. Mr. Ball's many friends will wish him a very large measure of success in his new work.

THE first manual-training school was opened in Altoona, Pa., September 22d, with 355 pupils—135 from the high school and 220 from the grammar schools. In the high school, where manual training is an elective study, 135 out of 142 elected the manual training; it is compulsory in the grammar grades. E. E. Karlson, a graduate of the Naas school in Sweden, is in charge of the new school. Mr. Karlson came to Altoona from New Britain. Three kindergartens, also, have just been opened in Altoona.

THE Earl of Rosebery has written to the chairman of the London County Council submitting a plan for the establishment of a great institution for advanced scientific and technical education, at a cost of $1,500,000. Lord Rosebery asks for an annual grant of $150,000 for the maintenance of the institution, and the whole scheme depends on securing this. In his letter submitting the proposition Lord Rosebery says: "It is short of scandalous that our ambitious youths should be obliged to resort to the United States and Germany for technical training." He

points out that English industries are suffering in consequence of the neglect of this important branch of education in the United Kingdom.—*School Journal.*

UNDER the stimulating leadership of Superintendent Frank R. Page, at Watertown, Mass., Mr. Harris W. Moore is developing a new line of manual-training work for the elementary schools. During the past year in the upper grades it has taken the form of cages for school pets—chickens, toads, and squirrels being in the list. The accompanying cut represents one of six squirrel cages made by seventh-grade boys for primary-grade rooms. It is about 4½ feet long. The lower part is lined with sheet-metal.



SQUIRREL CAGE.
SEVENTH GRADE, WATERTOWN MASS.

CANADA.

THE manual training sentiment seems to be taking a vigorous hold on the people of Canada, at least in certain of the provinces. Provisional regulations recently sent out by the educational department of Ontario require that plans for every building or room to be used for manual training be submitted to the minister of education for approval; and also announces very liberal grants to schools maintaining a manual-training department.

IN the province of Nova Scotia the rapid spread of manual training has been most gratifying. The first manual-training school in the Dominion of Canada was established in this province and now liberal grants are offered by the department of education to schools desirous of establishing manual-training departments in the public schools. A gratifying feature of the government's aid has been that the needs of girls have been recognized and equal encouragement has been offered for the establishment of "mechanic science" for boys and "domestic science" for girls.

MR. T. B. KIDNER, recently appointed supervisor of manual training, has been holding a summer school in cardboard-cutting, modeling, woodwork, etc., at Truro, N. S.

IN the province of New Brunswick, Mr. E. E. MacCready has recently been appointed supervisor of manual training, and three courses of manual training have been provided at the normal school for the improvement of teachers of rural schools. The traveling fare of teachers and a yearly grant of $50 is paid, provided they afterwards actually teach manual training along with the usual subjects of the school course. Arrangements are made also to provide substitute teachers for the schools while the regular teachers are taking the work.

BOSTON.

HENRY TURNER BAILEY has resigned his position as state supervisor of drawing in Massachusetts in order to give his full time to lecturing and writing for the *School Arts Book*, of which he now becomes sole editor. He is succeeded in the state work by his associate, Walter Sargent.

THE annual meeting of the Sloyd Training School Alumni Association was held at the Farm School, Thompson's Island, in Boston Harbor, July 8th. Addresses were given by Charles H. Bradley, Professor John M. Tyler and Gustaf Larsson. The number of teachers graduated at the Sloyd Training School up to the present time is 224. They are at work in 23 different states; 139 are in Massachusetts, and 30 in Boston.

MICHIGAN.

IMPORTANT changes have taken place at the Hackley Manual Training School during the past month. Principal E. P. Chapin resigned to accept the principalship of the Louisville manual-training high school and he is succeeded by Mr. Edward A. Bending, of Dayton, Ohio. Mr. J. H. Hibler, an instructor in woodworking, has gone to Honolulu to teach in a government school. His place is taken by Mr. J. S. Stewart, of Dayton. The other new teachers this year are Miss Anna Cooley from Teachers College, domestic art; Miss Grace Byington from Pratt Institute, domestic science; and Mr. M. H. Mount of Chicago, mechanical drawing.

Mr. Bending is a graduate in mechanical engineering from the University of Florida. In 1896 he organized the manual-training work in Akron, Ohio, where he remained two years. During the past five years he has been developing the work in Dayton, Ohio.

NEW YORK CITY.

LAST year's class in the Department of Manual Training at Teachers College was an exceptional, one both in numbers and in quality. They are now scattered to all sections of the country and are sure to exert a wide influence. Among the members who have returned to their former positions are Arthur H. Chamberlain, of Throop Polytechnic Institute, Pasadena, Calif.; Frederick B. Abbott, of the State Normal School, Emporia, Kansas; James J. Doster, of the State Normal School, Troy, Alabama; Annie Linton, of the State Normal School, Athens, Ga.; Mary F. Wickliffe, of the Winthrop College, Rock Hill, S. C., and O'Nora Ennis, who also returns to a position in the South. Charles H. Bailey takes charge of the manual-training work at the James Millikin University, Decatur, Ill., and William T. Bawden takes a similar position at the Illinois State Normal University at Normal. Charles O. Atwater goes to seventh-and-eighth-grade work in Indianapolis; Leonard W. Wahlstrom to the Ethical Culture School, New York City; Walter A. Cleveland to Montclair, N. J., as director of manual training; George L. Lewis to the high school, Syracuse, N. Y.; Ray L. Southworth to seventh-and-eighth-grade work in Minneapolis, and Browne K. Thacker to a private school in Lake Forest, Ill. Ernest B. Kent, who has just received the degree of Ph. D., Egbert E. MacNary, Florence M. Marshall and Amanda Stoltzfus are retained at Teachers College for work in the Speyer and Horace Mann schools. Julia M. Raines will teach in the State Normal School at Greensboro, S. C., and Marie H. Perley takes a similar position at Mt. Pleasant, Michigan. Frances H. Consalus goes to Long Branch, N. J.; Cora D. Fairchild to Seattle, Wash., and Litchfield Colton to the John B. Stetson University, De Land, Florida.

THE summer classes in manual training at Teachers College were large this year. Miss Weiser had sixty-eight in lower-grade work. They represented twenty-two different states, including Canada and Porto Rico. Fifteen of the class were men. Mr. Noyes had twenty-eight in seventh-and-eighth-grade woodworking and Mr. Weick had seventeen in woodworking for high schools.

THE officers of the School Craft Club for the coming year are: President, Charles R. Richards; vice-president, James Hall; secretary, George F. Stahl; treasurer, Walter M. Mohr; committee on program, Robert G. Weyh, Jr., William H. Noyes and Arthur L. Williston; committee on admissions, Edward D. Griswold, Frank H. Collins and Victor I. Shinn; committee on entertainment, Arthur W. Richards and Albert W. Garritt.

IT has been practically decided that the exhibit of the New York board of education at the St. Louis exposition next year will be mainly devoted to the summer school work. Ten thousand dollars has been placed at the disposal of the board for the preparation of the exhibit, and by devoting the larger part of this sum to one branch of the work of the board it will be possible to present a more complete exhibit.

ILLINOIS.

IRA S. GRIFFITH has become the teacher of manual training in the elementary schools of Oak Park. Mr. Griffith has been a public school teacher and a foreman carpenter, and at the time of his appointment at Oak Park, he was professor of mathematics at Eureka College, Eureka, Ill. His special preparation for work in manual training was received last year at Bradley Polytechnic Institute.

MR. F. D. CRAWSHAW has resigned his position of Instructor in the Manual Arts Department of Bradley Polytechnic Institute to accept the position of principal of the Franklin school in Peoria, where he is now developing manual work in the various grades. The position vacated by Mr. Crawshaw has been filled by Mr. C. C. Jett, who has had practical experience as draftsman with the Cincinnati Machine Tool Co. and the Newport News Ship Building Co., and has had teaching experience in the University of Minnesota.

CHICAGO.

THE Chicago school board voted recently to increase the salaries of teachers of manual training and household arts. Many of the teachers will receive an increase of two hundred dollars a year.

THE position left vacant by the death, last year, of Mr. Gabriel Bamberger, the superintendent of the Jewish Training School at 199 West 12th Place, Chicago, has been filled by the appointment of Principal Orris J. Milliken, of the Harrison school in the same city. The school is maintained by the Jewish Training School Society of Chicago, mainly for the benefit of the Russian refugee's settlement, in the heart of which it is located. The new superintendent has had extensive experience in teaching and executive work, and is especially fitted for this new position on account of his sympathy for and his desire to help the children of the poorer classes.

THE new Richard T. Crane manual training school of Chicago, which opened this fall, for the first time, is one of the finest public schools in the city. It is located at Oakley Boulevard and Van Buren street, and cost in the neighborhood of $450,000 all told. In addition to the regular day work, evening classes in manual training and domestic

science are to be carried on in this building for the benefit of both regular students who may wish to do evening work in these subjects, and teacheres who may wish to prepare themselves for teaching these branches in the elementary schools of the city.

TENNESSEE.

THE second session of the Summer School of the South was held at the University of Tennessee at Knoxville, June 23 to July 31.

While the greater part of the enrollment was made up of teachers from the southern states, there were represented thirty-nine states, India, and the Dominion of Canada in the total enrollment of two thousand one hundred and fifty.

The school this session offered instruction in thirty-three general subjects requiring a faculty of ninety-five members. Seven courses were offered in manual training, as follows: paper folding and cardboard, knife-work, basketry, clay modeling, weaving, sewing, and woodwork. The classes were well attended and the enrollment in each was necessarily limited to prevent overcrowding.

The courses in drawing should be mentioned in this report since the drawing and manual-training courses were closely connected and were regarded as a manual-arts course by the respective instructors, who were organized as one faculty for the promotion of the manual arts in the school. Courses were given for the primary, the intermediate and the grammar grades, also one in art applications and one in methods in drawing and art.

Students taking either drawing or manual training were encouraged to take the other as a companion subject. By such organization they were able to take their work in constructive design to the art classes for suggestive decorative design, and to study constructive design from the decorative and artistic side, as well as from the structural standpoint.

The total enrollment of the manual arts classes was eight hundred and sixty-nine. Besides this, there were eighty-two students enrolled in the courses in domestic science and in mechanical drawing.

THE department of manual training in the Nashville public schools began the third year of its work with the opening of schools, September 21.

MISS AMY F. PHILLIPS, formerly of Springfield, Mass., and later of the Boston schools, is now instructor of domestic science in Nashville. Besides domestic science and woodwork taught at centers, the various other forms of manual training are given throughout the eight grammar grades, with mechanical drawing and sewing in the high school.

The organization of the department is as follows: F. M. M. Richardson, director; Elizabeth Chase Randall, supervisor of domestic science and domestic art; F. W. Milbourn, instructor of woodwork; Amy F. Phillips, instructor of domestic science; A. C. Webb, supervisor of primary manual training and drawing.

KNOXVILLE city schools will continue the work in manual training along the lines of last year. In addition to the present equipment, one new center for woodwork will will be opened in the North Knoxville school and will be in charge of the principal, Mr. J. R. Lowry. The center in the Girl's High School building will also be in charge of the principal of the building, Mr. W. T. White.

Hamilton County introduced manual training in its suburban schools this year. These schools are reached by the various surburban lines running into Chattanooga, and it is expected to have manual training in all schools in the county as opportunity may be afforded. The work is under the supervision of Miss Emily G. Hughes, formerly of the Jackson City schools.

State Supt. Mynders provided instructors in manual training for five of the nine state institutes held this past summer.

Superintendent Mynders introduced manual training in the Jackson City schools when superintendent there, and is now opening the way for its introduction into all the public schools in the state.

F. M. M. Richardson,

Dr. Maxwell, superintendent of schools in New York City, has made the following statement concerning the position of the board of superintendents with reference to the course of study: "We believe that the content subjects of the course—those that represent our intellectual inheritance in literature, in science, in art, in institutions, and in morals—are by far the most important, and they rightfully demand the largest share of the time and attention of both pupil and teacher. We believe, also, that when, as in reading, arithmetic, writing, and manual training, there are mechanical exercises which require to become automatic to enable the pupil to handle the content subjects with efficiency, these mechanical exercises should receive sufficient time and attention for their mastery.

"And, lastly, we believe that mechanical matters should not receive any more time and attention than are necessary for the purpose in view, but should, after they have ceased to be a stumbling block in the way of the pupil, be taught incidentally in connection with the content subjects.

"Cooking will be given to girls and shopwork to boys during the last two years of the course. In the lowest grades it is our intention that boys as well as girls shall take work in cord, raffia, and the coarse sewing with which the work in household art commences."

REVIEWS.

Modern Machine Shop Tools. By W. H. Vandervoort. Norman W. Henley & Co., New York, 1903; 8 vo.; pp. 555; 673 illustrations; price $4.00.—*Modern Machine Shop Tools* contains in one volume what the student or apprentice most needs to know about the standard hand and machine tools used in the machine shops of today. The matter is logically and conveniently arranged, and well balanced. The method is first to describe the form or mechanism of a tool, with hints concerning its manufacture, and then to explain its operation, with examples of the work for which it is suited.

The strictly hand tools—chisels, files and scrapers—are first considered, then standards of measure and the various measuring and testing tools, making the first seven chapters of the book. Chapters on drills, reamers, taps and dies, drill and tap holders and mandrels follow — all good except the first, which is greatly impaired by poor cuts.

About half of the book is devoted to machine tools. Besides the descriptions of the machines themselves and their fixtures, the chapters devoted to their use, particularly in the case of lathes, planers and milling machines, constitute a systematic treatise on each kind of work. Minute details are avoided and a clear, comprehensive outline of all the usual operations is given. The forms of forged lathe tools shown are not of the best, and the discussion of the action of these tools, and also of drills, is rather meagre. The author may have had less experience in the use of hand tools and the direct operation of machines than with problems in mechanism, in describing which he is at his best. Nevertheless, his breadth of view is a great advantage, and in such chapters as those on filing and lathe work there is plenty of evidence that he has handled the subject at close range, and the expert workman will find little to criticise, and nothing fundamental overlooked. It is usless to try to put into words many things which we wish to teach, but which can be learned only through the student's handling the tools himself.

Six chapters on topics related to the construction and use of machinery round out the book, one on gearing being a very complete outline of common forms, without discussion.

The style throughout is clear and very concise. The author knows when to stop. His direct and fearless short cuts reach a climax when he explains that "a left-hand screw is one that enters its nut by turning it counter clockwise."

The most serious fault in the work lies in the cuts, the miscellaneous character of which unjustly makes the book appear like a mosaic from trade catalogs. At one extreme is a fine cut of a milling machine dividing head, at the other an impossible belt laced with a patent lacing, or a reamer with left-hand teeth. The drawing is often poor, and reference letters are sometimes badly placed or omitted, well-nigh ruining otherwise excellent descriptions.

Nothing as comprehensive and concise has been published in one volume on machine shop tools and processes. It will be convenient and suggestive to instructors, and offers to the student or apprentice a good general view of the subject for a moderate amount of study.

Mechanic Arts High School, Boston, Mass. Allan K. Sweet.

How to Make School Gardens. A manual for teachers and pupils. By H. D-Hemenway, director of Hartford School of Horticulture. Doubleday, Page & Co., N. Y. 5×7½ in. pp. 107, price $1.00—A timely book well made; illustrated with ten half-tones and sixteen wood cuts. The claim of the author that the individual school garden is one of the best cures for stealing, furnishes a strong argument in favor of such work.

The seven chapters treat of such topics as: laying out a garden; tilling and fertilizing; greenhouse work; root-grafting and budding. The longest chapter gives specific directions for a course of twenty-one lessons in gardening. These abrubtly end with preparation for "the exhibit." Seemingly other lessons on harvesting should be added. In connection with the later lessons, the grains and eight common weeds are briefly described. The same objection applies to this as to all books giving courses in school work; they are applicable nowhere completely, and the information given is not readily available. Though the author states that the greenhouse work, including root-grafting and budding, can be done in an ordinary school, this portion of the book will be less used by teachers than by home gardeners. The bibliography given in the last chapter clearly shows, by its catalogue chiefly of reports and articles, the need of such books as this, giving inspiration and help to those waiting to take up this belated phase of school work.

Supervisor of School Gardens and Teacher of Manual Training. Watertown, Mass. Harris W. Moore.

Tools and Machines. By Charles Barnard. Silver, Burdett and Company, New York, N.Y., 1903. 5×7½ in. pp. 164, illustrated. Manual training teachers will find in this book an analysis of the action of the most important tools and machines. The construction and use of the various tools are discussed. Certain typical tools that are clearly traceable to prehistoric forms are taken up and the different steps in the process of bringing the same to the present state of perfection are set forth with much interesting historical matter. For example, the evolution of the pile-driver, the steam hammer, the drop-forging hammer, and the pneumatic hammer from the hand hammer, and the modern tool from the ancient stone hammer or club.

The first chapter is introductory and definitive; then are taken up in order the following: The Hammer; The Power Hammers; The Knife; The Chisel; Edge Tools; The Great Cutters; The Saw and the Saw Mill; The Borers; The Abraders and Grinders; Woman's Ancient Tools; and a closing chapter. A complete index renders the contents of the book accessible.

This is not a technical treatise, but interesting and profitable reading for grammar and high-school pupils.

Illinois State Normal University, Normal, Illinois. William T. Bawden.

Chip Carving. Being the third book of the "How to do it" series. By T. Vernette Morse. Art Craft Supply Co., Chicago, 1903. 6¾ × 4¾ in.; pp. 23; price in paper cover, 25 cts.—A very disappointing piece of book-making.

Sloyd. By Gustaf Larsson. Sloyd Training School, Boston. 9¼ × 6 in.; pp. 75 + 10 pages of illustrations and 2 tables; paper covers.—This book consists of nine papers that have been written by Mr. Larsson during the past twelve years. Most, if not all, of these have been published before, but collected and printed together they become more valuable. "It is hoped," says Mr. Larsson in his preface, "that this little publication may help to convince teachers and other promoters of education that the principles of sloyd are broad and universal, and that as an effective educational agent it deserves a place in our schools." As America's leading representative of the sloyd system of manual training, Mr. Larsson has taken an important part in the development that has been going on during the past fifteen years and more, and his book, which is distributed free of charge, is a valuable addition to the library of any teacher of manual training.

The following have been received:

The Stout Training Schools. An illustrated circular of information concerning the schools for the preparation of teachers of manual training and domestic science. The Board of Education, Menomonie, Wisconsin.

Girls' Industrial College Bulletin. August, 1903. Course of study of the Girl's Industrial College of Texas, located at Denton. This number contains an address on "Industrial Education for Texas" delivered before the State Farmers' Congress by President, Cree T. Work.

Manual Arts Bulletin. A department prospectus for 1903-1904. State Normal School, Athens, Ga. 5½×5 in., pp. 27.

Industrial-Social Education. By William A. Baldwin, principal of the State Normal School, Hyannis, Mass., assisted by Mrs. Baldwin and members of the Normal School faculty. Introduction by Henry Turner Bailey. Milton Bradley Company, Springfield, Mass., 1903. 9½×7½ in., pp. 147; price $1.50. Reserved for later notice.

How to Make Indian and Other Baskets. By George Wharton James, author of *Indian Basketry.* Henry Malkan, New York, 1903. 9½×6¼ in., pp. 136; price $1, *net.* Reserved for later notice.

Report of United States Commissioner of Education, 1901, Vol. I. By Dr. William T. Harris, commissioner. Government Printing Office, Washington, D. C. 6×9 in.; pp. 1216.—Like its predecessors, this report contains a vast amount of information on timely topics in education. Among others we notice "American Industrial Education: What Shall It Be?" being a preliminary report of a committee of the Society for the Promotion of Engineering Education made July, 1900; "Higher Commercial Education;" "The Carnegie Institution;" and several chapters dealing with education in the South.

The Making of our Middle Schools. By Elmer Ellsworth Brown. Published by Longmans, Green & Co., New York, 1903. 5¼×8¼ in.; pp. 547+xiii; price, $3. Reserved for later notice.

MANUAL TRAINING MAGAZINE

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THE DEADLY FRIENDS OF MANUAL TRAINING.[1]

JAMES PARTON HANEY, M. D.,
Director Manual Training, New York City.

THE modern philosophy of education has happily abandoned that unconscious attitude which acted so to hamper the thought which preceded it — that attitude which viewed the child as one acting and thinking as an adult acts and thinks — as being, in fact, an adult on a smaller scale — a little man. In the light of his physical and mental development the child is now seen to be a constantly changing organism, by no means adult-like in its phases. His education is realized as a process as much designed to socialize as to individualize him — a process devised to give to him knowledge of what he is, what his relations are with the world about him, and what he must do to prosper them. The process of leading him from the natural world of primitive instincts to the larger world of intelligent emotions, is seen to make for that which we call culture. During such a journey the child develops aesthetic needs which must be satisfied, and as he physically unfolds while on the road, makes it plain that his perception, memory and judgment grow keen and accurate in the measure in which they are required to accomplish ends which bring motor activities into play.

The study of race development makes us also aware of a growing industrial consciousness. In the case of the child, any knowledge of the constructive life of his people must first arise through personal experience; must come, in other words, through motor channels. Constructive activity serves to familiarize him with the work-a-day world, and thus leads him to an understanding of the social life about him. It offers its aid in socializing the educational process by making the school more a

[1] Address before the Eastern Manual Training Association, Boston, July 6, 1903.

reflection of the world without. Constructive practices may thus be said to determine the way in which the child makes the things he studies a part of himself. They serve as agents of apperception.

Dependent upon these changes in the philosophy of education, we are witnessing, at the present time, radical changes in the elementary school. It is coming to be viewed more as a vital process, than as a disciplinary or drilling agent; more as an instrument which at different periods of the child's growth recognizes in him distinct forms of insight and acquisition, and offers to him opportunity for the development of such powers. Its curriculum is being broadened, and more directly related to the phases of the child's growth; a more intimate connection is being established between the different branches, and throughout the country there is a wide-spread introduction of various forms of motor education.

Advocates of manual training hail this development of their subject as a result of the wisdom and force with which they have conducted its propaganda. They are prone in consequence to indulge in not a little self-congratulation, revealing a satisfaction in the fact that a principle has been fully grasped. As indicated, however, this rise of the arts has been by virtue of a force quite independent of the specialist. The educational forces which have lent their weight to the economic demand that the child who is to live a constructive life be trained to see constructively, have come from psychologist and physiologist, rather than from the teacher in the class-room. In conjunction the former have placed the child before us, not as a fixed organism, but as one passing through constant yet regular developmental changes — an organism with fundamental motor instincts which require outlet through various channels, in analysis, construction and decoration. Their teaching has brought to us the realization that upon the child's interest depends his attention and retention, and that mental growth cannot take place in its fulness unless there is offered abundant opportunity for the play of those instincts of which interest is born.

The arts thus considered appear not as the result of a propaganda, but as a response to a definite demand for motor training—a demand not made on behalf of any specific or particular practice, but as a requirement that at each stage of the child's development, opportunity for motor expression, appropriate to that stage, be opened to him. This demand is for such expression as a necessary mode of training, as "a principle" rather than "a practice," as a means to an end, not as an end in itself. Not distinguishing, in the larger sense, between the different forms of

expression, it interprets the terms "motor training" to mean training in the arts generally, contemplating them as co-ordinate agents closely related to the other branches of the curriculum.

In the light of these statements the unsatisfactory nature of much of what has been common practice stands revealed. Separate courses and separate exercises have in the past widely prevailed. Each of the different arts has been regarded as an end in itself, and each has been sharply segregated from its congeners and from the other branches of the curriculum. It has, moreover, come to be realized that in his practice the child must play more of a part, the teacher less. Only through opportunity for individual planning and execution can the purpose and relation of various steps become visible to the pupil; only thus can the highest benefit be realized from such "mode" of training, and things and processes be seen "whole."

The older practice of the arts followed a formal creed, one which was content to see the different subjects apart and unrelated, one which employed but few materials and countenanced exercises far afield from the child's world. The present demands a revision of such creed, a recasting of its articles of faith in the light of a broader philosophy, a unification of the "special branches," and a restatement of their scope and value as educational agents.

First, in such a creed might well appear an affirmation that the arts are one — are subjects of a common end and aim — are forms of practice, not drills, — are to be regarded as a "principle" of education, not as a division of a specialized curriculum. Second, and as a consequence, that they should appear in every grade from the very lowest, and should in their development preserve to as great an extent as possible the free constructive spirit of the kindergarten; that they should be made to serve as center and start point in the elementary curriculum, leading the child through immediate interests to immediate surroundings; that they should illustrate in manner suitable to his comprehension how the world has grown and is constructively growing, or, to use the terms already employed, that they should serve to "socialize" him.

Further, such creed would place insistence upon the fact that for the little child the arts must be conceived as means of expression, while to his older brothers and sisters is left their practice in the domestic field or in the crafts. It would demand that they develop naturally in response to class-room needs, that they avoid automatism, require personal initiative of the teacher, and in their practice place the emphasis on the producer, not on the product — on the child, not on the process.

In addition, such creed would require that the things made have the attributes of permanency and value, that there be always a real motive behind and a real product before, and that the problems presented be chosen with a view to carrying the arts into the child's world outside the school, that the school and home may see an additional bond established between them.

The general tenets of some such expression of belief should be formulated and well conned by every teacher of the arts. Each instructor should, in addition, be conversant with the history of the special branches and the nature and action of the forces which have affected their teaching. It must, however, be confessed that at present there are many who take small interest in such history, while the canons of their belief show the rigidity of long established practice. In the courses of study put forth by these teachers, the arts stand special and apart, their separate exercises illustrating that tendency which has been aptly termed "a persistent gravity toward form instead of content" — a tendency noted by Butler in the case of certain kindergartners who would make "static, definite and permanent the forms of procedure, kinds of material and methods of development of their subject matter."

The specific causes of such arrest of development are to be found in a neglect of those principles which have already been outlined. It will be noted that in such outline, decided emphasis was placed upon three points: First, that the arts be regarded as joint agents aiming at the development of the child through natural instincts; second, that they be not confined to any special process or the refinements of procedure, but give through many processes familiarity with environment and the constructive point of view; and third, that in response to real needs they develop naturally, conserving the spirit of independence and initiative on the part of both teacher and child.

As the trangressor of the first of these injunctions we find the Specialist, the teacher who cannot see the different arts as a joint force in the curriculum. Brought up in some single form of work, whether drawing, construction or design, such a one sees his specialty loom large in the field, stands so close to it that its shadow envelopes him and permits him to view the child only through the haze of its requirements. His outline of work reflects little or nothing of the general curriculum. He labors as a stranger in a strange land. Among other instructors he comes and goes as one with them but not of them; the class teacher to him is only as one to be taught, never as one from whom to learn. To him, success means keeping his subject intact, and to this end he labors,

striving by still more highly specializing it, to magnify its importance. His plea is for that, as essential, whose very form shows how foreign it is to the system in which it stands.

Second, we find the Technician, he who cannot perceive the arts as a "mode" in education, but who regards them as disciplinary agents, as developers only of skill of hand. With him ends take precedence over means; the work quite obscures the worker. Whether in the case of professional sempstress or of journeyman-teacher, the difficutly is the same. It is illustrated by one, who, professing any branch, makes it plain in his teaching that he cares more about the perfection of the exercise produced, than about the legitimacy of the means he employs to secure such perfection. The Technician is a drill master. Automatism has no terrors for him. Each exercise, joint or seam is made over until the higher centers cease to interfere and passively govern the familiar movement of the tool, while the mind wanders off in interesting rumination or dully waits the next command. With the Technician the manual crowds out the mental, skill is sought at the expense of development, industrial canons replace educational precepts.

As the exemplar of order, we see the Ritualist—he to whom is foreign the idea of free development and personal initiative. Standing as the chief exponent of the "logical sequence of exercises" his course is drawn along some single narrow line, and in place of giving knowledge and inspiration to the class teacher, offers only a series of exercises rigid as a Median Law. The Ritualist poses as the advocate of system, but his eye scaled by the letter, fails to see the pulsation of the spirit which rises in the mutual interest of teacher and pupil, which comes of knowledge of simple processes, and seeks expression in individual effort and independent experiment. Local needs appeal but in academic fashion, to such a one. To him, it is of more moment that his work in practice preserve its beauty of arrangement, than that it be quickened by some actual necessity for the forms made. For him no happy possibilities of blossom and fruit are seen to rest deeply rooted in local interests.

Others might be named who traverse articles of the creed — but those indicated are among the chief offenders. As types they are not confined to either sex or any special practice, their initials may be found upon many courses of study, their trail be seen in many class-rooms. Multiform, they may not infrequently be observed apart from one another, while now, and again, they appear as a composite — a trinity of evils.

Standing as representatives of the arts, and as illustrations of what their practice means, such advocates do serious damage. They awaken

criticism both within and without the school, they hinder the development of their subjects, and leave them open to attacks on the part of those who see in them only the expensive experiments of doctrinaires and faddists. They antagonize class teachers who would be their best aids, and keep isolated in the curriculum, elements which should go to form its very bone and sinew. In short, such teachers charged with the development of the arts, stand as mischief-making friends, advocates who hinder, rather than help.

The general cause of difficulty is not far to seek. It exists in the inadequacy of the training of those upon whose shoulders rests so serious a burden. Theirs is a many-sided subject developing faster than they can themselves. Many have prepared to practice but one art, and fail in such a one-sided preparation to realize their limited point of view or the force of the demand that they make all three arts their own.

The correction of the difficulty is possible only through broader study on the part of those who elect to become teachers of drawing, construction and design. The plea for these subjects is that they are part of the general education of the child. Their teachers must then make themselves familiar with the general principles of education. The spirit of the arts clothes itself in very varying forms. Not only must the different subjects themselves be known, but the significance of their aesthetic principles and their educational bearing on the other subjects of the curriculum must be studied, that they may be led along many different lines of development connected with the language work, nature study and number work of the early years of the child's life. Racial history and the development of the child must also be known to the teacher of the arts, but above all he must be familiar with the philosophy of the kindergarten.

The one thing which to-day the arts most need on the part of their teachers is a higher scholarship, a deeper sense of professional dignity, a comprehension of the fact that they are teachers of fundamental and essential principles, not of special subjects. To such teachers there must come a conviction of the importance of thorough preparation, a willingness to lead the professional life, a constant seeking for problems, the solution of which will help in the development of the general educational scheme.

As students, such teachers must be continually bringing the resources of their study to a focus in the classroom. There are many questions touching their work, the answers to which would be of educational significance. What, for instance, is the child's sense of beauty? What his

general attitude toward constructive work? Upon what do his interests in the arts depend? What are the relations of his play and constructive instincts? How does his color sense develop? Has the culture-epoch theory a rational basis in construction? Outside of technical skill, what tests can be applied to prove the development of the pupil through the arts? These problems and a score of others suggest themselves at once. They cannot be answered off-hand, nor are personal opinions valuable. To be properly responded to, careful comparative study and experiment would have to be made. Such study, in the case of individual problems, each teacher of the arts should be prepared to make, that he may lend his aid in their solution. Each should set himself some definite work during the year, and submit it when complete for the benefit of his fellows. This is the professional spirit, and for such spirit the teacher, as an individual and as a member of an association like this one, should stand. Every society of teachers of the arts should aim to raise the professional standards of the matter contributed to their meetings. Their yearly reports should be epitomes of the best work of their members. Instead of the general and often desultory discussions engaged in at such meetings, it wound seem as if the work of each society would be distinctly furthered by specific debate upon the outlines of work to be undertaken by its members in the year to come — a debate reviewing the limitations of the moment and outlining the means which should be undertaken to extend them.

With such an attitude — such determination to stand not as specialists with separate studies to develop, but as students of elementary education — the teachers of the arts might claim admission to educational councils. Impressed with the spirit of individualism, which is the spirit of the new creed, they would, as the representatives of a great faculty, be well prepared to justify the claim that the arts are "the great conservators of individualism" in the elementary curriculum.

OPPORTUNITIES AND LIMITATIONS OF PAPER AND CARDBOARD IN THE SCHOOL.

ARTHUR HENRY CHAMBERLAIN,
Throop Polytechnic Institute, Pasadena, California.

Let me say at the beginning that it is not presumed that the matter presented in this paper is new. A somewhat intensive study of the problem as outlined, however, has given the writer a point of view which, if a biassed one, renders him at the same time unwilling to make off-hand suggestions. In a previous article[1] I tried to point out some of the present-day tendencies in the teaching of handwork, and shall entertain the hope that the present paper may be interpreted in the light of the article referred to.

The study of relative values, as applied to the various materials and processes in manual training and to school subjects generally, is occupying such an increasingly prominent place that I find it demands deep thought and broad experience and experiment to discuss adequately our present problem. However, it is just such discussion that shall help, at least, to determine the relative values.

In laying out the limitations and opportunities of paper and cardboard construction, we must have an eye, not merely to the practices in common vogue, but to such additional processes as would be considered rational. To this end permit me to preface this paper with a statement regarding the genesis and development, as school helps, of the materials we are discussing.

One of two somewhat distinct movements from which our present-day practices have sprung had a beginning nearly as far back as the inception of the handwork idea. In Germany, in France, in Sweden, paper materials have been quite widely used in the schools. Taking the German schools as illustrating best these practices, we find that the objects made classified themselves mainly under two heads: first, such objects as assisted in the illustrating of mechanical or physical principles, and second, the making of type-forms, developed in some instances in such manner as to lend themselves to the mathematical work and serve also as drawing lessons, involving not only the constructional drawing,

[1] MANUAL TRAINING MAGAZINE, Vol. IV, p. 61.

but representation or freehand sketching, when the object was completed. Finally, out of this latter type-form work developed the idea of producing useful articles from the cardboard stuffs. The type objects referred to took the form of cubes, cylinders, cones, pyramids, many-sided polygons, and the like.

The other movement, namely, the kindergarten practice, has been such that work with paper has, since the time of Froebel, had a place in the lower school. Here such processes have been carried on as folding to produce flat, geometrical forms; cutting of paper, both geometrical and free; pasting of forms folded or cut so as to produce units or running designs, as borders and the like. The weaving of paper into mats, the making of chains and various other fancy, decorative forms, have, from time to time, occupied no small place with the work of many schools.

It is, then, these two thoughts which have given impetus and direction to the paper and cardboard study in our schools to-day. From the type-form idea and following down through the so-called German courses, we have only recently attempted work of a modified and simplified character, dealing chiefly with lighter-weight materials than formerly. As opportunity in no small degree grows out of necessity, we shall find at the bottom the same argument for giving cardboard work as we shall for placing wood, metal or other material before the child. Specifically speaking, the opportunities vary from grade to grade, or with the development of the pupils.

Paper in whatever form is easily obtainable and comparatively cheap. The matter of expense plays no inconsiderable part in our consideration of the subject, especially in some instances where the work is being introduced. This fact is clearly appreciated when the public-school problem with its thousands of pupils is under discussion. From the standpoint of expense, then, paper offers some attractions. If properly handled, there is very little waste. Again, these materials are comparatively easy of manipulation. With young pupils such weights may be used as shall not tax their physical abilities, while with older students materials offering much greater resistance may be utilized.

Paper and cardboard are capable of being put to a variety of uses in the making of useful articles. Some of these have already been indicated. In addition, pupils may produce such objects as letter holders, picture frames, boxes and trays, napkin rings, book covers, whole or partial pieces of apparatus, or, in the lower grades, dwellings, furniture, utensils, implements, and the like can be made. This last statement serves

to point out the possibilities of illustrative material in the primary school. The character of paper and cardboard renders it clean and tidy, and hence applicable for use in any school-room or at home. It may be manipulated, also, in a greater or less degree, by any grade teacher.

In the use of these materials the graphic art has a strong place. Objects must be thought out, planned and designed, thus bringing in the constructional side of drawing as well as the free sketching. Through the study of form, of ornamental design, a feeling for the artistic is developed. Color blending and harmony, so essential and attractive to young pupils, is largely assisted through the selection and arrangement of materials.

On the other hand, the limitations of the work are many and varied. The materials in question, owing to their very nature, are circumscribed in their usefulness as school helps. While a large variety of objects can be made, these are produced at the expense of reducing the number of exercises or manipulations to a minimum. No great number or differentiation of processes of construction is possible. This must of necessity be so, owing to the small number and the character of the tools used. Not that it is essential in handwork to have a vast array of tools for use, but limiting work in this direction has its drawbacks. It must, of course, be realized that the fact of the tools being few and simple, offers some advantages in favor of the work.

Certain processes, demanding considerable difficulty in manipulation, afford at the same time little opportunity for the development of physical power. Indeed, we find many processes attempted by young pupils much more diffiult of accomplishment than those being performed at the woodworking bench in the higher grades. So, too, there is danger of attempting processes where the actual manipulation or construction can be easily accomplished, but the designing of the thing — the drawing and development of the object — cannot be fully understood. In many instances too much repetition is likely to result from the work, this of course owing to the nature of the material and to the character of the tools used.

In the first and second grades the folding, cutting and pasting, should as formerly have a place, but to my mind a less important one. Weaving with paper need not be so prominent since we have other and more natural media for this purpose. Folding of flat forms to produce geometrical shapes—square, oblong, etc., cutting and pasting of designs; color blending; free cutting from manila or detail papers of forms such as animals, natural objects, fruits, dolls' clothing, pictures, and the like; cutting, fold-

ing, and pasting to produce play or doll houses, furniture—chairs, tables, cradle; making of envelopes, valentines, boxes, tags for labels; these are some of the ways in which the work may be carried on in the lower grades.

In the second year more difficult pieces of furniture can be constructed from heavy manila paper, and light-weight cover stock may in some cases be used to produce special individual projects for use at home or at school—wall pockets, cornucopias, clock-faces, note-paper covers, calendar backs, seed envelopes, weather charts and flags, wind gauges, etc. It will be seen then that the field offered in these grades is mainly that of illustration or representation, such processes being given attention as will assist in the social phases of the child's existence.

The opportunities are greater and the limitations are less when dealing with third and fourth grades, than elsewhere in school, perhaps. Here we have an extended field for the making of typical objects of beauty and of use. The pupils can deal with the more substantial cover papers and the light-weight bristol boards or tag stocks,while the age and ability of the boys and girls here represented would,for the most part prohibit them from engaging in some of the more heroic hand-work processes. In these grades, also, the work may be illustrative when opportunity offers; house construction, parts of utensils, small apparatus and machines for nature study, and in schools where a somewhat varied equipment is found, a variety of objects may be made. Cutting, mounting and filing of pictures for class use. trays for specimens, boxes for the pupils' belongings at home and at school, picture frames of various forms and decoration, napkin rings, calendar backs and supports, memorandum and program cards, portfolios for school exercises, envelopes, note book covers, handkerchief cases, etc., etc., these are some of the multiplicity of objects that offer themselves and afford almost endless variety in design. Here there is a constant opportunity for the study of color-blending in the selection of material; for representation through drawings; for appreciation of the artistic in form and proportion, and in the conservation of material.

In grades above the fourth, the work may be an advance upon that already spoken of. In addition, heavier cover and bristol stocks and rice, straw, and pulp boards of various weights can be introduced. The rice or straw boards are perhaps better suited to some work than is the pulp board, as they do not soil readily. If, however, the surface of the stock is to be covered, the pulp board is best, as paste is easily absorbed into it. These materials are quite substantial, many objects constructed from them serving their purpose as fully as though made from wood. Here again, simple and cheap apparatus to connect with the natural-science

work and mathematics can be designed and made. Useful and artistic objects if presenting a dull and uninteresting surface, may be covered with lithograph, embossed, or fancy paper, and a finished effect produced. In the selection of these papers, which are of a variety of designs, a considerable degree of taste is developed. Heavier and more serviceable articles, some of them of the same nature as those made in previous grades may be mentioned—picture and mirror frames; boxes with hinged covers and permanent fastenings, for paper and envelopes, gloves, etc., note and text book covers; bill, letter and picture files, scrap books, card cases, portfolios for drawings, written exercises, and photographs. This work will lead on to elementary book-binding which I shall not touch upon here.

In summing up the points covered let me say that we must consider relative values not only, when thinking of the limitations of this work, but of the particular conditions surrounding the individual school. Much of the work that might be suggested in paper and cardboard could well be omitted if equipment for other forms of work were available. Pupils, however, enjoy the subject, and boys and girls alike are deeply interested where it has the proper handling.

I have not touched upon the methods of fastening, as much latitude is possible here, adding greatly to the value. Pasting by means of laps, etc.; sewing with thread or yarn; punching holes with an awl, or with a punch, and using such materials for tying as flosses, rope linens, cord, such as is obtained in drug stores, silks, ribbon, braid; fastening by means of slits and tongues; these are some of the methods that may be employed.

There is considerable diversity of opinion as to what materials are best suited to the work in any particular grade; the use of paste in the lower grades; what tools are necessary for heavy work; where triangle, knife and scissors should be handled; these, and many additional questions touching equipment, methods, and cost, are constantly arising. A brief word on these points may be of some value.

Folding or cover papers, or other materials purchased locally at retail from the stationer, will, of course, cost much more than when procured direct from the wholesaler or manufacturer. Royal Melton, Roman, or Princess cover papers, or others of like character, may be had in quantities at 1 cent to 2 cents per sheet. The bristol board, in all colors, may be had at about the same price. In the upper grades, where a heavy board is to be used, the pulp board is preferable to the rice, or straw, or other heavy boards, if the surface is to be covered, as the pulp board, being more porous and less tightly pressed than the

others, absorbs the paste more readily. This stock comes in sizes 22 x 28 inches, and frequently larger. It should be ordered by number—40, 50, 60, 70, 80, etc.—the number in each instance indicating the number of sheets to the 100 pounds; 60 answers for purposes where a medium weight is necessary, while 50 and 80 serve well for heavy and light work respectively.

When convenient, hot glue is excellent for heavy work. Flake glue, broken fine and placed in a glue-pot with a little water, may be prepared, and kept over a gas jet or bunsen burner, ready for use. If this is impracticable, paste will be found to answer all purposes.

[1]Library paste, or photo-mounter, in jars or bottles, in handy form, may be procured. This paste comes in tubes of small and large size. Paste made from flour is much cheaper, and quite as good if not superior to that on the market. Mix a quantity of flour (sifted) with sufficient cold water to mold nicely; see that no lumps remain. This may be done by running the paste through the hand. Place upon the stove and pour in boiling water, stirring at the same time. When the paste is of the proper consistency (it should be quite thin, as it thickens in cooling) remove the mixture without allowing it to boil. Add a few drops oil of cloves, to give a pleasant odor. To prevent the paste from spoiling add one grain bichloride of mercury — mercurie chloride (Hg. Cl. 2). Stir well. Hg. Cl. 2 is a poison, hence care should be exercised when stirring in. When mixed, however, there is not sufficient strength for danger. The paste may be kept nicely in the small glass jars, with screwed tops, that are purchased with library paste. Each pupil should be provided with a jar, and the covers should be on when the paste is not in use. The small brushes that come with the library paste are very cheap and handy. They should be kept in water when not in actual use. In lieu of brushes, splinters of wood will answer the purpose for small work. When pasting, a cloth should be used only to keep the hands tidy. Never use a *cloth for tamping* down the work. This method only serves to spread any soiled spots which may appear. Place a newspaper over the work and run the hand over this to smooth any wrinkles. Always use newspaper upon desk when pasting.

While paste can be used with the smallest children, it is probably wise to delay its use somewhat until the pupil has learned something of how to manipulate his material, and he will then soil and destroy comparatively little.

[1]See the writers' manual on "Suggestive Work in Paper and Cardboard Construction."

In the lower grades, say up to and including the first half of the fourth grade, the scissors should be used for cutting. In these grades also a 12-inch rule, with bevel and brass edge should be in the hands of each pupil. The brass edge rule will also answer for the work in upper grades where heavy material is used, affording a straight edge for knife cuts. From the third grade up it is well to have several 5-inch or 6-inch triangles at the disposal of each class. If one triangle only is purchased, perhaps it is best to have the 45°–90°, as the right angle is not only frequently brought into play, but the 45° angle as well, as the bi-section of the right angle is easily understood.

For work in heavy papers one knife for two pupils will be sufficient. Some form of knife with short, stout blade, similar to the Henckels Solingen made for this purpose, is best. Pieces of sheet zinc, say 12 x 18 inches, with corners rounded, will cost about 15 cents each. These offer a good cutting surface, and when the steel of the blade is of good quality, do not readily dull the knife. A conductor's punch, for general use, will cost 25 cents. In the upper grades eyelets may sometimes be used, and a suitable punch and eyelet set and box of eyelets will cost $1.00. Bone folders (similar to bone letter openers), are useful in sharpening up edges and in pasting.

Five-inch scissors of good quality are desirable. The cut should begin near the joint, and be long, extending to within a short distance of the point. A cut the entire length of the blade will leave a torn place or notch. Short, jerky cuts lead to poor results. In scoring, or cutting half through the material, either scissors or knife may be used, the latter being preferable. In soft, pliable material a scratch only is necessary. When dealing with bristol board, the cut must be made of sufficient depth to allow of folding without roughing the paper back from the edge. The paper should be folded away from the cut.

A T-square is probably not necessary in this work. As it is desirable to have the work as free and as meaningful as possible, the mechanical side should not be pushed unduly.

Economy in both time and expense will result from the purchase of a card cutter, such as is used by stationers and printers. The prices range according to size. A cutter with 12 or 14-inch blade or larger would be preferable. A frame for holding scissors or knives, so they may be carried readily from room to room, or school to school, is made from 3-inch stock (white pine or poplar), 8 x 12 inches. Holes hored to admit scissors or knife points, and a handle of leather or metal completes the arrangement. A suitable desk cover (where zinc is not used),

is made of ½-inch wood, 10 x 18 inches. A second piece, ½ x 1½ x 18 inches, is fastened under the front edge of the cover as a cleat, and helps to keep the cover in place on the desk.[1]

My strongest conviction is that paper and cardboard have much of value in schools where as yet no permanent place is given hand-work; it serves as a wedge for the admission of more extensive things. Its cheapness and simplicity are coupled with the fact that the regular grade teacher may, with a little definite instruction, so acquaint herself with the necessary processes, as to formulate her own ideas. From the real, vital, social side of our problem we find opportunities throughout the grades, for illustration and connection, in the study of peoples, customs, and the like; occupations, industries, manufacture, the arts, trade, etc. Finally, in this as in all else the opportunities and limitations are determined largely by the manner in which the work is carried on. Proper teaching here as elsewhere is a determining factor. A broad outlook and a right presentation will lead to unknown possibilities, while narrow or careless teaching tends to reduce the value and intensity of the work.

[1] Valuable suggestions on the tools and equipment have been given by Miss E. A. Howland, of Greenfield, Mass., Normal School.

A MANUAL ARTS STUDIO.

M. W. Murray,
Supervisor of Manual Training, Springfield, Mass.

It is pretty generally admitted in theory, if not carried out in practice, that exercises as such, should be eliminated from the manual-training work of the lower grades, but when a class first comes to the manual-training room, it is necessary to give the pupils simple exercises to teach the use of the different tools. These exercises may be given in the form of useful models, so graded that one leads to another a little more difficult, until the pupil finds that he can use several different tools and is able to recognize in a new piece of work, exercises or operations which he has performed before.

In addition, it is well to show pieces of work which are excellent in workmanship and design, though far beyond the pupils' powers of execution at the time, for they can be led to see the application of what they are doing to something larger and will get the inspiration which comes from seeing a thing well done. In this way, principles rather than models can be taught, and it will tend to make boys independent thinkers and workers.

A great many boys wish to make some particular thing which is either something large and beyond their powers, or something which requires preparatory planning and drawing. In the first case, they should be led to see that they are not ready to make what they desire, but that they may make it as soon as they are able. Poor work, when recognized as such, is as unsatisfactory to the boys as to the teacher. In the other case, they should be led to work up what they may have in mind with the aid of pictures, descriptions and illustrations, until fully prepared to begin the construction.

It is hard to do this kind of work in the ordinary manual-training room, first on account of the noise. In a place where we as teachers, can do but little original thinking and planning, we should not expect it of our boys. Second, very few manual-training rooms have a place where books can be kept and illustrations put up on the walls for study. One way of overcoming this difficulty is to ask the boys to plan at home what they may be interested to make and to bring it in for help and approval. A better way is to have a place where a boy can go to find a helpful book or

illustration, where he can sit down to think the matter over and confer with his teacher.

A room of this kind is hard to find in connection with a manual-training room, and will be, so long as this department continues to be stowed away in the lightest corner of a basement. In our school, we felt the need of a room of this kind, and the problem was solved in the manual-training and drawing departments.

Adjoining the manual-training room was another of equal size which had only a concrete floor, and was not directly connected with the manual-training room. The boys decided that it would be a good plan, since the floor of the first room was so poor that it was difficult to keep the benches down, to cut a door-way through the partition, lay a floor over the concrete, and move the benches into that room. After having discovered how door-ways are cased, they went to the mill and ordered the casing for the new door, cut the door-way and cased it.

The next thing was to figure the number of feet of joist and flooring needed and to give the order. Then came the laying of the floor, which involved the proper spacing and leveling of the joists before putting on the boards. This work was all done out of school hours, nights after school and Saturdays. About three months were required for this work and during this time, the boys learned how to lay a floor and some of them discovered what good, hard work is.

In the mean time, the ninth-grade pupils decided upon the best place for a reading room, as they called it, in the old manual-training room. They selected the best lighted corner with windows on adjacent sides, and having drawn it to a scale on the blackboard in the drawing room, they began to discuss the question of furnishing it. They came to the conclusion that if it was to be a reading-room, they would need a bookcase, a table, and two or three chairs. Then came the question of the kind of bookcase, where it should be placed, the kind of table and its dimensions, and the style of chair, a simple one that the boys could make which would go well with their bookcase and table. They found the distance that the chair seat should be from the floor by having average-size boys sit in different chairs. Then the table had to be of a certain height if these chairs were to be used with it.

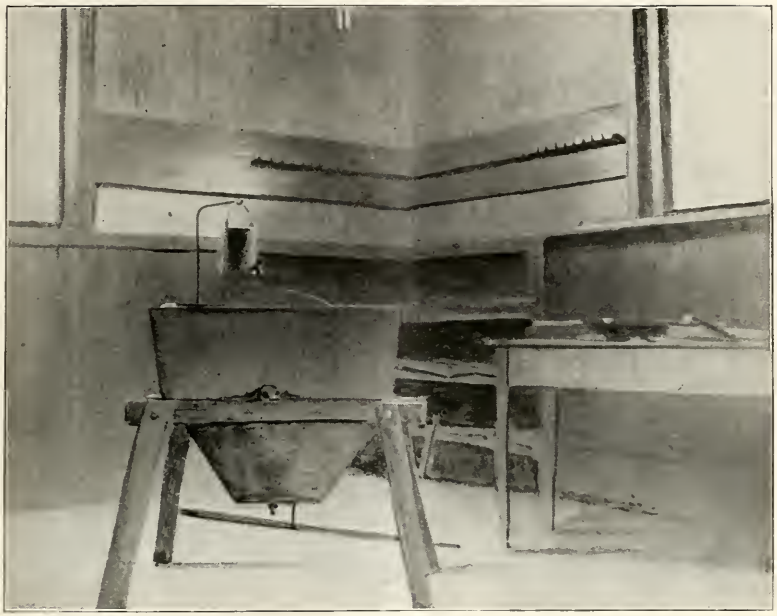
The boys and girls in the drawing classes of each of the ninth grades, took a piece of furniture to design. They sent for furniture catalogs and and made sketches of different pieces seen in the stores. They had to consult the manual-training teacher about the kind of joints to be made and where to put them. After making sketches and getting the propor-

MANUAL ARTS STUDIO, STATE STREET GRAMMAR SCHOOL, SPRINGFIELD, MASS.

tions, they drew one or two of these pieces on the blackboard, full size, to be sure that they were right, and then made their working drawings. When this was done, they chose the best one from each class to be made.

The eighth-grade pupils were, at the same time, making drawings for a large screen which would shut one side of the corner from the rest of the room. They worked out the color scheme and found that if the walls were to be used for pictures and clippings, green burlap would be better than the dirty plaster wall. Then came the painting of the sheathing to harmonize with the burlap, and the staining of the furniture a color which would be in keeping with the rest of the room.

In the mean time, the boys in the manual-training classes were doing their best work so that they might be chosen to work on a piece of furniture when the drawings came from the studio. When the drawings were finished, the manual-training teacher called for volunteers to make the furniture. Every boy in the four ninth-grade classes who thought that he could be of service, volunteered. Two for the bookcase, two for the table, and one for each chair were chosen. These boys were the best workers



CORNER OF ROOM, BEFORE BEING TRANSFORMED INTO MANUAL ARTS STUDIO.

and all of them had tools and benches at home where they could do the same kind of work that they were doing in school.

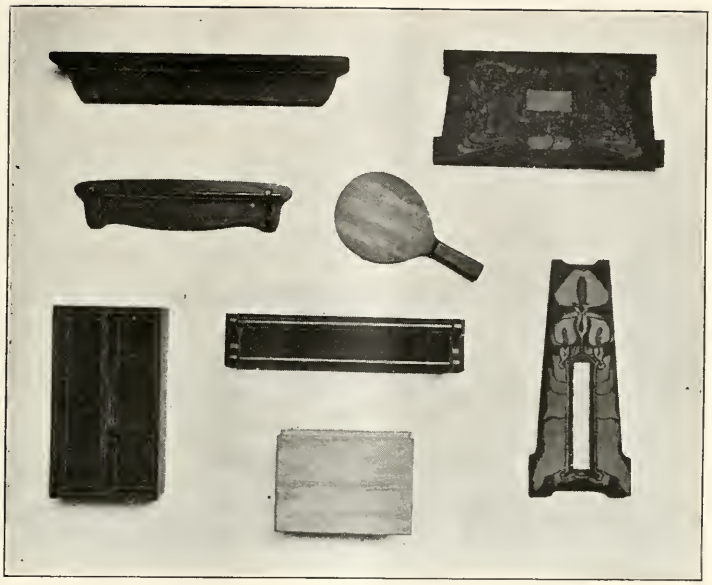
They took all of their regular time for the last half of the year and in addition worked about as much more out of school hours. They were fully as interested in this work as in any other and could not use too much time or care to have things right when finished.

Two of the chairs were not finished that school year, and the boys came back from the high school to finish them, which shows that they were really interested in the work and that the altruistic spirit was cultivated to a high degree.

Notwithstanding the fact that the city library is just across the street from this school, and that the boys can get almost any book for an indefinite time for school use, we find our reading-room with our own reference books and periodicals invaluable. There are several which the manual-training teacher wishes to own. These are kept in the room for the use of the boys, a large percentage of whom are interested in electricity. The boys watch for the new numbers of "Amateur Work" and similar papers to find something new which they can make at home. One of our

boys, during the last year, built a model electric railway, third-rail system, making the different parts in school and putting them together at home. He succeeded in getting this to work, much to the amazement of some of the boys in his neighborhood. Another boy was interested in steam engines and during his two years in the school, built three, one of which he fitted up to run a model launch.

A room of this kind does a great deal to develop the different outside interests of the boys and the manual-training teacher very often finds that he can learn from the boys, if he will.



I

AN EXPERIMENT IN HIGH-SCHOOL BENCHWORK.

WILLIAM E. ROBERTS,
Supervisor of Manual Training, Cleveland, Ohio.

The accompanying photographs are illustrations of some tangible results of a conservative experiment with bench-work classes of first-year high-school grade. The experiment was a protest against the sawing-planing-chiseling-exercise courses in woodwork which have dominated our high-school manual training so many years. It was intended also to reach farther than the thought of the sloyd course of logically arranged exercises embodied in a definite series of finished models to be worked out by each individual pupil.

On the other hand the experiment was very far from an abandonment of all method. It was the purpose to adopt suggestions from both the exercise and model methods, with the higher thought of developing originality and initiative on the part of the pupil. If there were any general principles upon which the experiment was based, they were these:

First: That there should be no exercise work pure and simple.

Second: That all of the work should have in it the elements of beauty—in construction, in proportion and in decoration.

Third: That the pupils should be trained to take the initiative in every way possible: that the work should be arranged to meet their individual needs, and that they should put into it as much as possible of their own thought, in design, construction and decoration.

The problem was not an easy one to solve. It seemed clear, and so proved, that the ideal could only be reached by gradually ascending steps. They naturally arranged themselves, as the work advanced, somewhat as follows:

First: Until some skill had been acquired by the pupils it was necessary to choose very simple models and to have all make the same pieces. This was still in accordance with the sloyd idea, for an effort was made to have all the models, however simple, useful and of character in design.

Second: Gradually the pupils were led to take the initiative by selecting as a class one of several models presented, all making the same model.

Third: Later by changing the proportions and dimensions of the given model to better meet the pupils' individual needs.

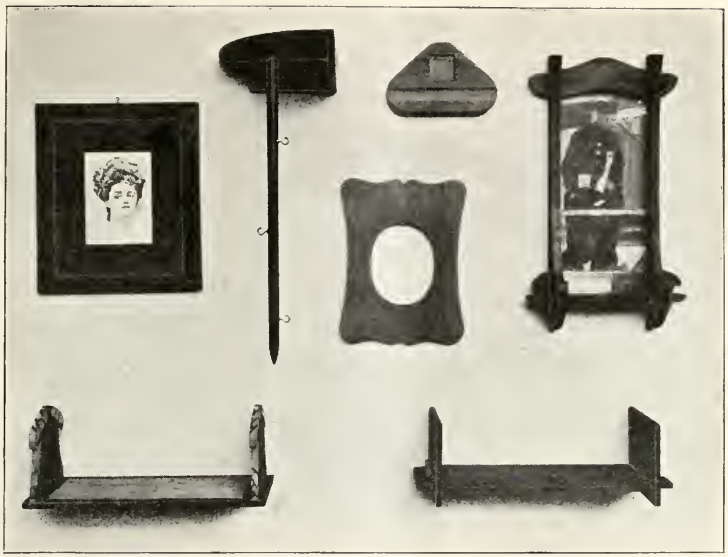
Fourth: Still later by selecting from several models presented the one that the pupil as an individual particularly wished to make.

Fifth: The pupil was then led to design a given model, with suggestions from the teacher.

Sixth: Finally the pupil was led to the point where he could choose, design and construct successfully his own model.

Some important things were noticed as a result of the experiment: Greater mental activity and originality were required and developed on the part of both teacher and pupils; an unusual interest in the work was shown by both teacher and pupils; self reliance and initiative were developed in a remarkable degree, and the standards of workmanship were much superior to any attained under the exercise method.

None of the simple models used in the beginning of the course are shown in the photographs. Numbers one and two are photographs of various models made during the year. Number three shows the elaboration of a given problem, the book rack, by the pupils. Three methods of construction were here suggested, but more than a dozen different constructions were developed by the classes of about eighty pupils. Number four illustrates the development of the picture-frame problem, involving the mitre joint. Here the problem was one of adaptation, as well as construction, the picture itself forming the basis for a study in mounting, framing and decoration which would be in harmony with the pupil's choice of subject. Number five illustrates another treatment of the picture-frame problem, involving the study of line and form.



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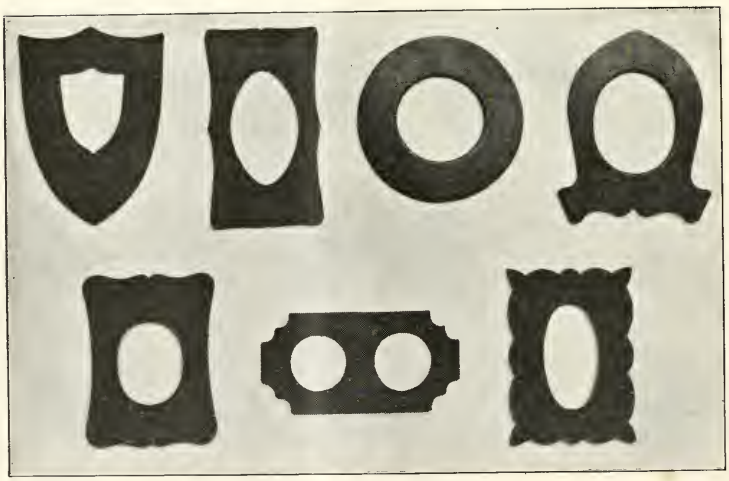


5

SHEET METAL WORK IN THE GRADES.

FRANK G. SANFORD.

I APPROACH this subject with caution, for it has been so interesting to me, and was so successful with my boys that there is danger of my saying so much in its praise as to cause the impression that I would give it undue weight in the manual-training course. Perhaps it is best simply to tell something of what the boys of Oak Park and myself, with the help of Superintendent Hatch, worked out in this line last year.

The work, experimental in some ways, was planned from the esthetic viewpoint of home decoration, based, of course, upon good construction, and was inspired somewhat by the courses conducted under Mr. Hugo Froehlich at Pratt Institute. We had a regular woodworking-shop equipment, to which we added enough to make the following equipment for metalwork:

(*a*) Individual equipment.

A block of hard wood 12 in. x 3 in. x 4 in.
A block of soft wood 12 in. x 9 in. x 2 in.
A small block of steel approximately 3 in. x 4 in. x ½ in. (This may often be gotten from the scraps of some foundry at a low price.)
A pair of tinners' small shears.
A small nail set, used for a rivet punch.
A small rivet set.
A hard-wood mallet with head about 3 inches long, one end being turned to a hemisphere.
A medium size half-round file.
A medium weight ball-pein hammer.
A pair of flat-nose pliers.
A pair of round-nose pliers.
A small screw-driver.
A sheet of carbon paper.

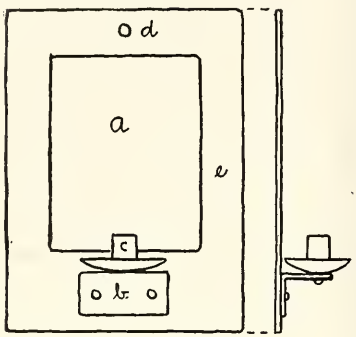
(*b*) General equipment.

A roll of soft sheet brass, gauge 23, 12 inches wide; cost at wholesale from 18 to 20 cents a pound.
Some sheets of soft copper, gauge 23; cost at wholesale 20 to 25 cents a pound.
10 medium-size rat-tail files.
5 wood rasps, medium size.
5 pairs of large metal shears.
12 gross round-head ¾-inch screws.
A supply of 6, 10 and 20-penny wire nails, emery paper, and some scraps of soft wood.

As will be seen, a number of the tools may be used in regular woodworking.

We usually spent one full period of two hours upon our drawing before working in the metal, each boy composing his own design whenever this was possible. Every shop equipment, of course, contains a complete drawing outfit, consisting of board, T-square, triangle, rule, eraser, compasses and thumb tacks.

Fig 1



One of the most successful pieces made by my boys was a brass sconce, or candle bracket. As the method of work followed in this piece may be applied in a number of pieces, I will give the development of this lesson in detail.

The class was shown a completed sconce, not to serve as a model, but to illustrate the use of the object. The first thing in order was a discussion of this use. This developed a little historic talk on the Colonial period when sconces were used for lighting, and brought the work in touch with the study of American history.

Next we must consider structural necessities. What parts are necessary? Every boy must clearly understand that the element of beauty, the ornament, is secondary and dependent upon utility or good construction. We found that in a sconce the following parts are necessary: *First*: A back, to protect the wall from the heat and smoke and to form a support. This back piece must have a reflector, Fig. 1, (*a*), which should be smooth so that it may be polished. *Second:* A bracket, (*b*), to support the candle. *Third:* A cup, (*c*), to hold the candle, and a saucer to catch the drippings. *Fourth:* A hole, (*d*), to hang it up by. Now these parts must be there in the relation shown in Fig. 1, however much we may change their shape and proportion.

But, boys, what does this sconce lack? We have all that use requires, but we want something else. Does it not lack design, beauty? We must then make a design for our sconce. In the centre of your paper draw the diagram, Fig. 2, observing the exact measurements, and leaving at least an inch margin all around, as shown. Draw the vertical diameter A B. Now this 8 in. x 11 in. rectangle is the limiting size of your sconce. You may make it narrower, if you like, for one candle, but it would be well not to make it shorter.

Next we want our outside line — the outer edge of the sconce; so we will design this in one-half of our space. This design will be wide enough for two candles. You must remember that this metal is to be cut with shears so we cannot have any deep curves or sharp points

Fig. 2

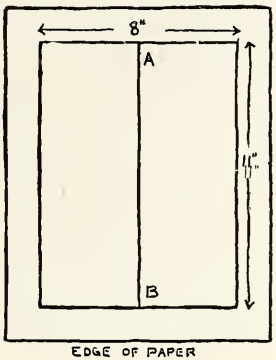
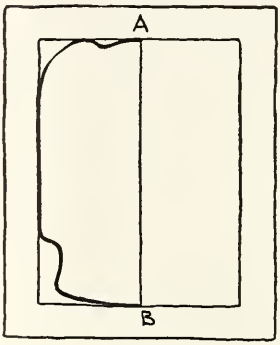


Fig. 3.



sticking out on our design. Keep the curves convex, or only slightly concave, Fig. 3.

Next we must plan the reflector and candle holder. Of course they should be in good proportion to each other, and to the margin; we must

Fig. 4.

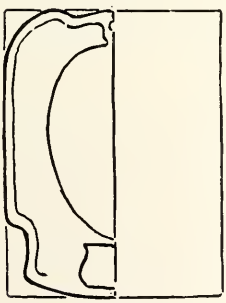
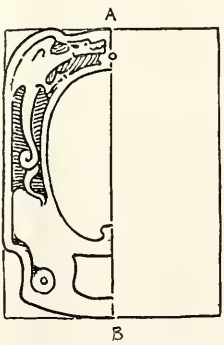


Fig. 5.



consider all of these together. So we will plan one-half of our reflector as in Fig. 4, and outline the place where our bracket is to be attached to the sconce. It is necessary to draw only half of our design, as you will see, and it is not necessary to draw the cup and saucer, as these are made in another piece. Now compare Fig. 4 with Fig. 1, and it will be seen that we have all the essentials, at least on one side, and we have

DESIGNS BY GRAMMAR SCHOOL PUPILS.

added design. We are almost ready to consider the decoration, but first let us put a border inside the outer edge, as shown in Fig. 4. For ornamenting the sconce I put three motives on the board: a tulip, a peacock and a dragon, allowing each boy to choose one of these or any other appropriate form. Only in a few cases did I allow boys to copy my design outright — only where a boy had really tried to originate one and failed.

Most of the boys preferred the dragon, so we had a little talk about dragons in mythology; there was Bellerophon and the chimeræ and St. George and the dragon; then the dragon as the national emblem of China, and prehistoric beasts that might be good dragons. We considered how useful a dragon is in ornament because you can take such liberties with him; you can add heads, tails, wings or claws at pleasure, and so make him fit very nicely into almost any space. Of course the boys are interested in making their dragon fit well — that is, in composing. This also gives us a chance to talk of the difference between pictorial and decorative work — how in the latter things don't have to be natural, but we can borrow and re-arrange all sorts of strange beasts so long as they fit well ornamentally. We will suppose the dragon nicely arranged in one side of our design, Fig. 5. We must avoid very small spaces and not attempt to put in scales or features, because they would

be too difficult to finish. And we must understand that a designer uses a clear, distinct line; that in this way his drawing is different from that of our artist who tries for a sketchy, free, atmospheric line. Keep the boys on this drawing as long as possible.

Fig. 6.

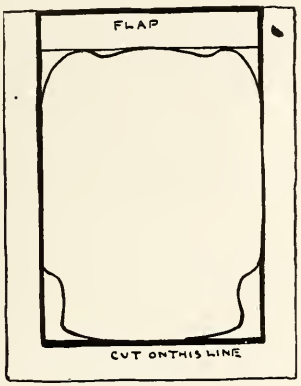
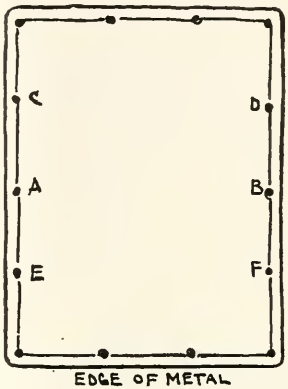


Fig. 7.

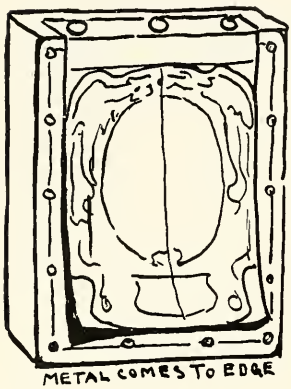


When this is done as well as possible, take off your paper, fold it exactly double on line A B, with the drawing inside, and with a hard, smooth surface like a file handle; transfer your outline from one side to the other by rubbing on the back. This, of course, will give you a perfectly symmetrical design. Now see that your curves join smoothly. With pencil put in a dark tone on those parts where your background is to be stamped, leaving the lower part, where your bracket is to be riveted, perfectly clear.

Plan your background to fit nicely and in good proportion to the design. Cut your sheet carefully on lines marked heavily in Fig. 6, that is, on your 8 x 11-inch line, leaving flap at the top, as shown. We are now ready for our metal. The brass should be cut to 9 x 12 inches; it is best to buy it in 12-inch rolls. This should be cut by the teacher before class, exactly to size, and each piece flattened by laying it upon a smooth, hard-wood block, and striking it with the broad side of another block. If you allow the boys to do this the din will be frightful. Draw a pencil line ¼ inch from the edge of the metal all around; mark holes on this line, as indicated in Fig. 7. These are for screwing the plate to our soft-wood block. If you use fewer screws than this your metal will not be held firmly. Lay your metal on one side of your hard-wood block, and punch holes with the nail set and hammer. Before screwing

the metal to the block it is well to round off the sharp corners a little. In putting in the screws work from the middle holes outward, as A, B, C, D, E, F, etc., for if you begin by screwing down the corners the chances are that your metal will not lie flat in the middle, and will vibrate under the tool. Press the metal flat between each screw head as you go.

Fig 8



It is better not to clean your brass before transferring your design, as the dirt-roughened surface takes the lines better than a smooth surface. Fit your drawing, as trimmed in Fig. 8, in the center of your metal sheet. If you have followed directions ions, it will come well within the screw heads. The flap at the top will be long enough to fold over the end of your block, and you can attach it with three thumb tacks, as shown in Fig. 8. This leaves three sides of your paper free, and you may slip a piece of carbon paper under it and transfer your design by going over the lines with a hard pencil. But as the hand rubs over this you are likely to erase it, so we shall scratch in our lines with a small metal tool, made by filing a wire nail to a conical point. Do this by setting your nail in the vise between two chips of soft wood, to avoid scarring the vise, and file down with the flat side of your half-round file. Holding the tool close to the point, scratch in your lines upon the brass. Now we must make two more tools from nails. Take a 6-penny nail, and file the end, as shown in Fig. 9, making a small, square stamp on the end of your nail; this should be quite small, as the effect will be better if a small stamp is used. Smooth this with emery paper, so as to get rid of any cutting edges. Take a 20-penny wire nail, file and finish it to correspond with Fig. 10 — what we might call a screw-driver edge. Be careful and not get a sharp edge that might cut through your metal. Take your stamp, and, holding it as indicated in Fig. 11, go over your background carefully, getting a regular stamped surface of even depth, but not too deep. Do not attempt to get a smooth surface, because a great deal of the interest in the result depends upon the contrast of rough background with smooth, embossed parts. Work up carefully to your lines. A pupil should not be allowed to leave his work until this is carefully done.

Fig. 9

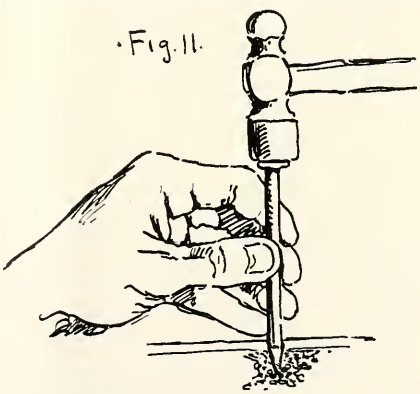
Now you can take your second nail tool, and, using it as a chaser, set in the edges of your design where they seem to need accenting, being careful not to go too deep. As you proceed with the stamping your design raises in a smooth, embossed surface. We do not wish for a heavy relief, and, remember, that in this cold-metal work only a low relief is possible.

Fig. 10

Heavy repousse, or embossing, must be done with frequent annealing or heating of the metal, and this is outside of our present consideration. For heavy or detailed chasing and repousse a bed of pitch is used, but the soft wood is good enough for our purpose.

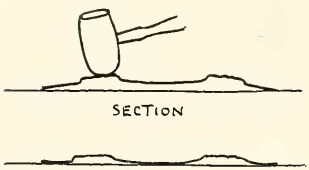
When the stamping is completed remove the screws and trim your brass with the shears on the outer line of design, Fig. 3. Now, if a student has indulged in deep curves and a convex outline, his sins will find him out — he will have trouble in getting the shears around the small curves. As a rule, use the small shears for this purpose, because, the blade being short, you can turn the curves more easily; moreover, always cut near the joint rather than the point of your shears. You will find when your cutting is done that the sconce is considerably warped owing to the stretching of one side of your metal, caused by the stamping. Resting it face downward upon tbe smooth side of your hard-wood block, tap it with the mallet (not the hammer) on the stamped parts, and it will gradually flatten. Of course, if you strike too hard you are likely to beat out your design, but a light stroke will not endanger this, Fig. 12. Avoid striking the smooth parts, especially the reflector. The following rule should always be observed in cold-metal work: Never, when possible to avoid it, strike your metal with metal, or upon metal; use the mallet and wood block and so keep your sheet soft as long as possible. Of course, in rivetting, the hammer and metal block are necessary. Now file your edges with the half-round file, using the flat side for convex curves, the round side for concave curves. Finish smooth with emery paper.

Fig. 11.



In planning and cutting out the candle holder and drip saucer, we have to consider several things: *First:* Are we to have one or two candles? If one, of course the holder will come in the middle of the reflector; if two, plan accordingly. (See Fig. 13.) *Second:* The size of the cup or holder. *Third:* The depth and width of the saucer to catch the drippings. This should be at least two inches in diameter.

Fig. 12.



Plan your bracket in the following manner: On a small sheet of paper fold a vertical line, and cross it with a horizontal, as A, B, C and D, Fig. 14. We are to draw one-half only, as shown in Fig. 14. The curve below your horizontal is planned for the space left at lower part of your back piece, Fig. 13, (*a*). It need not occupy the whole space, but should be in good proportion. It's width will depend upon whether it is for one or for two candles. Above CD, which represents the bend of your bracket (see side view, Fig. 1), draw a space 1½ inches wide, as shown in Fig. 14. Fold paper double on line AB, and cut out your pattern. Mark around this on your brass, and cut out.

Fig. 13.

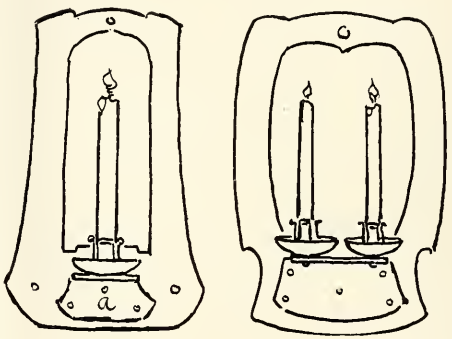
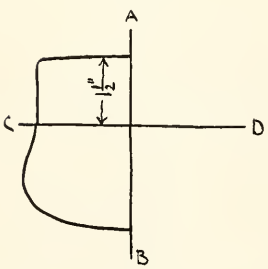


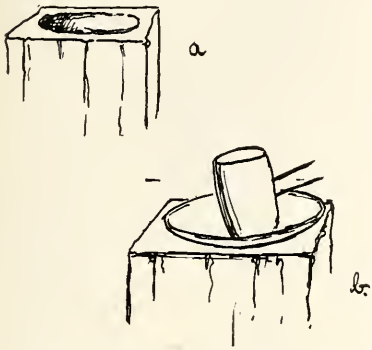
Fig. 14



For your saucer, cut a circle 2 inches in diameter for each candle. But these must be hollowed to catch the tallow, and it is done easiest in the following manner: Set the hard-wood block on end in the vise; take your hammer and with the ball strike the end of your block until you have formed a smooth hollow, as shown in Fig. 15, (*a*). Holding your circle of metal over this, beat it into the hollow with round end of your mallet, as shown in Fig. 15, (*b*), until you have formed an even saucer. The edges may be raised by tapping them on the inside with the hammer, as shown in Fig. 16, resting the metal on the flat end of your block. Cut out brass for the holder like Fig. 17, and, according to measure-

ments, one for each candle. Now carefully smooth the edges of all your pieces until the finger can be passed around without catching, and we are ready for the punching and riveting. I would advise the use of small copper rivets as being the easiest to handle.

Fig. 15



Our punching of rivet holes is done upon the flat side of a hard-wood block, with the nail set (used as a rivet punch) and hammer. In the base of your bracket punch three holes, as indicated in Fig. 13, (*a*), each a little larger than the diameter of the rivet. The punching will raise a slight edge, which you may hammer down upon the metal block. This will make your hole a little small, perhaps, but it can be twisted out with the punch. Punch all holes in your saucers, holders, and bracket piece, but not in the back of the sconce.

Riveting is done with the hammer upon the metal block. Set your rivet through both pieces, as shown in Fig. 18, (*a*); put the rivet set over the end, and tap it down with the hammer to close your pieces together,

Fig. 16

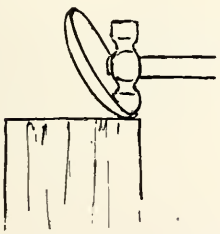


Fig 17

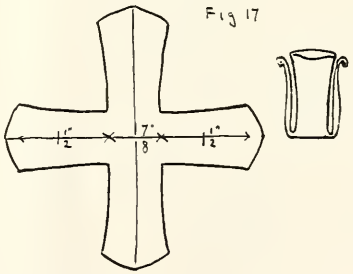


Fig. 18, (*b*). With the flat end of your hammer tap the rivet down squarely, spreading it as shown in Fig. 18, (*c*). If it is not struck, or upset squarely, the result will be like Fig. 18, (*d*). Note that the rivet is not hammered down even with the surface of your metal, but as in Fig. 18, (*c*). Finish by tapping the edges with ball of hammer, to obtain a rounded head, Fig. 18, (*e*). Let the boys practice riveting upon some scraps, and after a little they will be able to do this neatly.

Rivet your candle-holder and saucer to the shelf with one rivet before forming up the holder. The rivet should be hammered from above,

as shown in Fig. 19. With your square-nose pliars first, and then your round-nose ones, bend the holder to fit your candle, as shown in Fig. 17. Last, rivet your bracket to the back of the sconce, marking, punching, and riveting one at a time, so as to insure a perfect fit.

Fig 18.

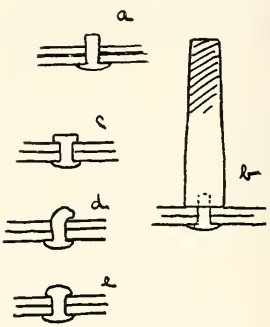
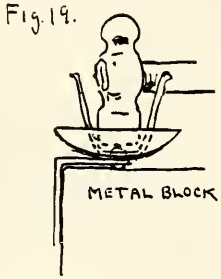


Fig. 19.



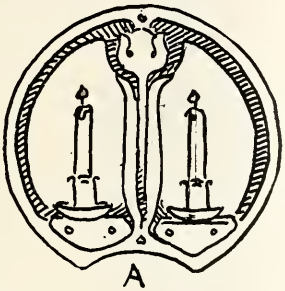
It would be well to polish all of your pieces before they are riveted. Any good brass polish will do for this.

In the sconce we have had practice in original design, pattern-making, metal-cutting and filing, stamping and forming, riveting and tool-making. By the method used in forming our saucers, a small tray can be made, the edges previously stamped with designs. Such a problem as a perforated lamp-shade, or lantern, can be worked out, the main difference being that you perforate the metal upon the block instead of merely stamping it. I am sure that, with the knowledge obtained from making the sconce, many things will suggest themselves to the teacher, as they do to the boys.

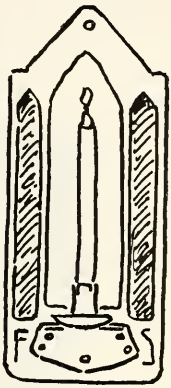
In Oak Park our boys voluntarily did much of the stamping upon their sconces at home, and were so much interested that it was difficult for me to get my lunch eaten before they were clamoring for admittance in the afternoon.

The cost of the work need not be great. Our boys paid the wholesale price for their materials by weight, and the highest price charged was twenty cents for a copper box.

This work might well be put in the eighth, ninth, or high-school grades, either as a one-year course, or as optional work to relieve the monotony of woodwork, which in some schools seems overdone. Or it might be held out as a special inducement to those who work faithfully

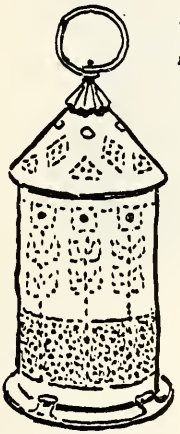


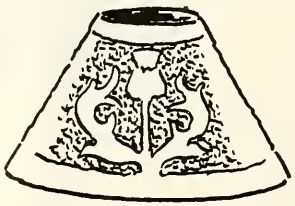
A



B

TWO SCONCES
A SUITABLE FOR ORDINARY ROOM
B APPROPRIATE FOR ROOM WHERE VERTICALS DOMINATE

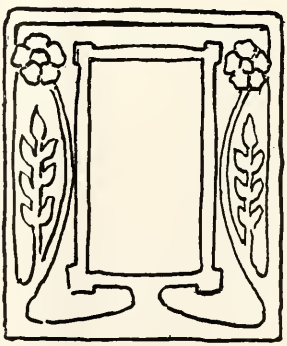




PERFORATED BRASS LANTERN
GAUGE 30 BRASS

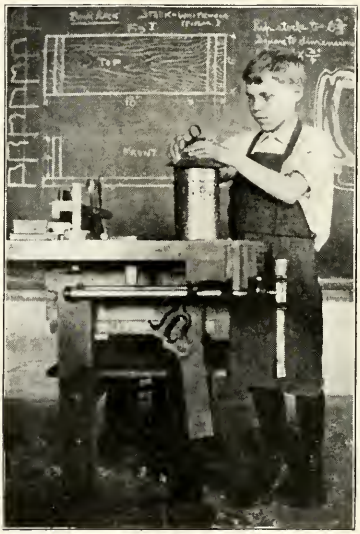
DITTO LAMP SHADE

A COPPER OR SILVER FRAME, VERY LOW RELIEF FOR A MIRROR



F5

in wood. There is a field for corelating with chemistry in the high school, in experiments with acid and heat, thus coloring the metal. I believe the work has great possibilities, and I know it was a success in Oak Park.



FRANK A. HILL

EDITORIAL.

Frank Alpine Hill

By the death of Frank A. Hill, Secretary of the Massachusetts Board of Education, on the 12th of September last, the teaching profession lost one of its most distinguished representatives, and one of the staunchest supporters of manual training and other educational reforms. For many years Mr. Hill has been a recognized leader in educational work in Massachusetts, both in a literary and in an executive capacity. As a writer, a public lecturer, and a speaker before educational bodies he has been much sought, not only in his own state, but throughout the country. He has served several teachers' associations in the office of president, always with rare spirit and dignity. During the later years of his life his official duties have been many and varied. He was *ex officio* one of the commissioners of the Massachusetts School Fund, a trustee of the Boston Museum of Fine Arts, a trustee of the State Agricultural College, and member of the corporation of the Massachusetts Institute of Technology, which office he also held by election. He was a member of the Schools' Examination Board appointed by Harvard University in 1893. He served two years as president of the Massachusetts Schoolmasters' Club, and for one year was president of the Cambridge Club, an association of one hundred of the leading citizens of the uni-

versity city where he made his home for the last seventeen years of his life.

Mr. Hill belonged to that class of men justly honored in America, who, from small beginnings, have risen to make a marked impression upon their day and generation by strictly professional work. Born Oct. 12, 1841, in Biddeford, Maine, he was the son of Joseph F. and Nancy (Hill) Hill, a lineal descendant of Peter Hill, who came from Plymouth, England, in 1633, and settled on Cape Elizabeth, near Portland. He was admitted to Bowdoin College at the age of sixteen, and earned his way through by teaching during the long vacations. Notwithstanding this handicap, he took a high place in the social life of the college. He was an active member of the debating club, editor of the *Bowdoin Bugle*, curator of the Natural History Society, and class-day prophet. He was graduated at the age of twenty, with the honor of delivering a commencement oration and of election to the Phi Beta Kappa Society. In 1894 his alma mater conferred upon him the degree of Litt. D. After graduation he continued the work of teaching for a time as principal of the Limington (Me.) Academy, and later of Biddeford (Me.) high school, where he had fitted for college. In 1864 he decided to take up the study of law, but after two years' experience in a law office he decided that his life work should be teaching. For the next five years he was principal of the Milford (Mass.) high school, and for sixteen years following he was head of the high school in Chelsea. It was in these positions that he won his high reputation as an inspiring and thorough teacher, and as an exceptionally efficient school manager. In 1886 he was elected head master of the new English HighSchool in Cambridge. He organized this school with 350 pupils, and saw the number doubled in seven years. He took a large part in planning the interior arrangement of the new building which was erected for this school in 1891, and many features of design, for which he was responsible, have been widely copied all over the country. It was in connection with this school that he became associated with manual-training school work through the organization of the Rindge Manual Training School, founded and for ten years supported by Frederick H. Rindge for the boys of the English High School who elected the manual-training school course. When Boston decided to organize its Mechanic Arts High School in 1893, Mr. Hill was naturally chosen its first head master. Though he held this position but one year, his rare abilities as an organizer are easily discernible in this school at the present day. In May, 1894, he entered upon the duties of the high position which he held at the time of his death—that of Secretary of the Massachusetts Board of Education. No better

comment can be made upon the importance of the work of Mr. Hill during the nine years of his secretaryship than to give the brief summary by years of educational legislation during his adminstration, which appeared in the *Springfield Republican* September 13:

In 1895.—The acts authorizing towns to pay the tuition in academies of children in towns where there is no high school, provided the board of education approved the academy; the act forbidding the display of any foreign flag upon any public building or public school-house; the act requiring school committees to furnish public schools with national flags; the act to require towns to pay the tuition of children attending school outside of the town in which they reside.

In 1896.—The grant of $4,000 a year for 40 free scholarships in the Mass. Institute of Technology; the act to change the law regarding the election of school committees; the requirement that petitions for the incorporation of an educational institution with power to grant degrees shall be duly advertised; the act that $2 per week may be paid to public school teachers in small towns from the state treasury in addition to the salaries paid by the towns, provided that the total was not above $10 per week.

In 1897.—The act to enlarge the power of taking land for school-houses; the act to enlarge the number of small towns which could take advantage of the law giving $2 per week extra to public school teachers.

In 1898.—The act to permit the temporary release of children from truant schools; the act to prevent children under 15 years of age from appearing in public performances; the act to permit unions of towns for the employment of school superintendents; the act to permit division of the state scholarships at the Institute of Technology and the Worcester Polytechnic Institute; the act to forbid any child under 14 years of age from working in any factory or store; the act to strengthen the truancy law; the act to revise the law relative to the election of school committees in towns.

In 1899.—The act to establish 40 free scholarships at the Worcester Polytechnic Institute; the act to permit the temporary release of children under sentence of truancy; the act to authorize the establishment of summer vacation schools; the act to permit city councils and town meetings to take land for public school-houses, libraries and engine-houses.

In 1900.—The act to change the form of returns made by school committees to the State Board of Education; the act that the fare of public school children on street railways shall not be over half the regular fare; the act to permit the reduction of the length of the school year to 28 weeks in towns of less tban $200,000 valuation; the act to make compulsory upon every city and town in the state the law for superintendence of public schools.

In 1901.—The extension from October to November of the time for filing school returns; a grant of $14,000 for extra compensation of teachers in small towns; repeal of the law allowing selectmen to take land for school-houses; the law to put the accounts of truant schools under the supervision of the controller of county accounts.

In 1902.—The act to strengthen the law against work by minors in factories; another grant of $14,000 for extra pay for teachers in small towns; reimbursement from the state treasury of towns which have paid to other towns high-school tuition for pupils; the creation of a commission to consider the broad question of the support of public schools.

In 1903.—The act to change the distribution of the income of the state school fund in order to give larger help to small towns (the measure which has taken the place of the proposition for a mill tax.) The act providing for the transportation of children living upon islands; the act to permit girl school offenders under 12 years of age to be put into the custody of the State Board of Charity.

Secretary Hill believed in giving a full education at public expense to all the children of the state, and earnestly advocated this policy in many public addresses. It was largely due to his efforts that the benefits of high-school education were placed within the reach of the children living in the smaller towns, through a generous allowance from the state funds. His address upon the question, "Is the High School a Just Charge upon the Public Purse?" has been recognized as among the ablest defenses of the Massachusetts system of secondary education. He believed in the professional training of teachers and favored the employment by all school committees of educational experts as superintendents. This policy was made effective by an extension of the law requiring employment of school superintendents until it included every town in the state. He was intensely devoted to the policy of giving the privileges of the public schools equally to all classes, regardless of race, color, or social condition; and he insisted upon making all the schools the best that liberal support and professional skill could accomplish.

In his personal qualities, Mr. Hill combined to a rare degree the charm of a fine presence and a gentle manner, with force of character and exactness of mental attitude. He was characterized by the thoroughness of his habits of work, by a prompt sympathy in the trials of others and a reticence about his own, by absolute disinterestedness, by his faithfulness in little things as well as in the larger duties, by his invariable courtesy and frankness, and by a tactfulness that was not divorced from truthfulness. He recognized the best in his pupils and in all those who were associated with him in teaching. It was often said of him that he never spoke ill of anybody. This generosity of feeling seldom failed to call forth its natural response in others, so that he easily commanded the respect and loyalty of his pupils and of his fellow teachers. One who knew him well speaks of his private life as "happy and beautiful, full of self-sacrifice for his family, and of answering affection and comfort."

C. F. W.

The practice of but one form of motor training will lead to an arrest of motor development.

The "Special" Class

Public school practice is slowly coming to recognize that the backward child cannot and should not be taught in a class with his brighter brother. A sorry fallacy has in the past essayed to prove that the dullard may be wakened to energy by contact with his more active mates. In reality the demonstration has only served to show that the progress of both bright and slow is retarded. The boy of deficient development is a drag upon his neighbors and when brought to a curriculum unsuited to his comprehension stumbles through its mazes bored and hopeless, or careless of the consequences, escapes as a truant into the open. The attempt to force the dullard to keep the pace with normal children serves but to produce untoward results. Such results every friend of the elementary school should lend his aid to prevent.

Abroad, in many cities, school conditions have long since dictated the segregation of the deficient child, and his systematic training in classes and schools organized and equipped for special instruction. The time cannot be far distant when every large school throughout our own country will see the establishment of the "special" class.

For the teacher of the Arts this class should have a peculiar interest. The training of the dull child must proceed largely along the lines of sense perception. Many such children learn more with their hands than with their heads; manual training is for them the open door to mental training. There is no teacher of a "special" class but can tell of pupils to whom there never had come the inspiring flush of success, the pride and conscious knowledge of power, until their hands had fashioned and completed some constructed form.

Constructive work is, for the dullard, more than a manual drill; in its orderly processes it is a moral drill—it is a mental and physical stimulus. It gives knowledge which such a pupil can never draw from books, gives inspiration which can never rise for him in routine class-work. In the words of Dr. Wey it offers that "general mental quickening" of which the dull boy stands so much in need.

It should be understood that no elaborate equipment is needed for the "special" class. An ordinary classroom with three or four work-benches will suffice. Few and simple tools are necessary, while for curriculum one must have a "course" elastic in every particular. So organized, with a dozen or so pupils giving at least a third of their time to manual work, the "special" class will not fail to establish its value as a boy-saver. Trained teachers are an advantage, but as a foundation to training there must be a deep and sympathetic interest in the work itself.

Trained teachers are not now numerous, but the supply will equal the demand once it is realized that it is far wiser, and in the long run far less expensive, to maintain the "special" class than to maintain the costly and elaborate machinery necessary to reclaim and discipline the boy driven forth by the school to dubious courses because, implastic clay, he would not take the mould.—*J. P. H.*

Problems in construction should not be offered as imitations of self activity but as real exercises, dealing with real things—there should be real motives behind and real outcome ahead.

On the Study of Design

We hear much of the relation of art and manual training, though less as to just what this relation includes. Analyzed, the "art" reveals itself as the art of design, having for its laws those fundamental principles which are at the basis of all well constructed forms. Yet of these simple principles how many teachers of construction are ignorant! Good workmanship these teacher knows—firm joints, trued edges and square faces, but the laws of balance, rhythm and harmony—the "consistencies," as Ross terms them, of attraction, movement and character are to them as a book sealed; Salomon and Goetze, Ricks and Barter are familiar names, but Day and Jackson, Crane and Dow bring no sense of recognition.

The reason for this is not far to seek. The constructive work of our school shops rose in the teaching of the sloyder and in the practice of the technical institute. In both of the parent systems the model was presented to the pupil ready-made. The business of the latter was to duplicate it—neatly, accurately, mechanically. Individuality was not sought for; technical excellence was the aim.

The spirit of an educational philosophy preaching personal initiative, has slowly but surely altered the earlier practice. The "original" model has taken the place of the sloyd exercise and the practice joint. Coincident with the introduction of the completed "project", there has of necessity appeared the demand that construction be not taught apart from design. The project must be planned before being built—"planned" means designed.

The significance of this change each teacher of constructive work will do well to consider. More and more is it coming to be seen that the pupil should make no desultory study of various constructive pro-

cesses but should see his lessons in drawing, construction and decoration brought to a common focus in a model which when completed, represents a form which he has thought out, drawn and made in accordance with the principles of sound construction and good taste. Ignorance of the laws of line and mass, of beauty of form, propriety of material and suitability to purpose cannot but hinder the development of constructive work. Every teacher of constructive work should be a student of design. —*J. P. H.*

Beauty taught apart from use is not taught.

One of our editorial staff, Professor Charles R. Richards, is now on a journey through the Orient. He sailed from New York early in December, bound for Naples. His itinerary calls for a week in Cairo, nearly a month in Bombay and cities in adjacent territory, another month in passing on through Calcutta, Rangoon, Singapore and Hong Kong, reaching Shanghai early in April. The next three months are to be spent in China and Japan. The return trip is by way of Hawaii and San Francisco. He expects to arrive in New York about the first of September. The purpose of the journey is recreation and pleasure combined with a study of the arts and industries of India and Japan.

C. A. B.

No nature lesson as such, can compare in interest with an hour among the birds and flowers—no practice lesson as such, can compare with the making of a needed thing.

ASSOCIATIONS.

THE SCHOOL CRAFTS CLUB.

The School Crafts Club of New York City held its first meeting of the season at the Hotel St. Andrews on November 13th, with a good attendance. Eight new members were elected. Routine work having been disposed of, the program of the evening was opened by W. H. Noyes, chairman of the session.

Mr. Noyes called attention to the revival of workmanship now in progress. Following the invention of the printing press, the literary arts had risen in importance, while handwork, having largely given place to machine work, had sunk into comparative obscurity. We were now beginning to realize that not all culture is to be found in letters — that culture is the expression of power, and that the transformation of materials in many lines of art and industry contributes a very important part towards all-round culture. Hence the revival. We should therefore, as teachers, recognize the value of the professional study of the arts. Upon this subject a paper would now be presented to the meeting by Dr. James P. Haney.

PROFESSIONAL STUDY OF THE ARTS.

Modern psychology, modern pedagogy and economics have given a tremendous impetus to the study of those forms of activity which look to the mental and physical development of the child, to the revelation to him of his environment, and to his preparation as an actor in the world's work. In response to these demands a complex system of training has developed. This aims to give mental training in observation and judgment, physical training in expression, moral training in restraint and order, aesthetic training in the laws of taste. It is designed to give some knowledge of the social growth, a survey of the world's work in simple form, and an insight into the part each worker in the world must play. Further, it seeks to offer to the child some knowledge of the primary principles of construction, some skill in elementary technique, and some practice in the application of the laws of design.

The general aims of the system are thus, in a broad way, seen to be parallel and a part of the general interests, ends and aims of all education. The subject matter which lends to such aims we denominate "the arts," including under the general title all those motor and aesthetic studies which are embraced under the general headings of drawing, construction and design.

To get a proper sense of perspective of a form, one must stand off from it. To properly realize the relations of a subject, one must stand aside and view it from without. Those who deal with some special branch of the arts are for the most part too close to see their subject in its relations, and far too near to see the arts as a whole. They cannot sense the significance of the threefold pressure which is active to the development of their specialty. The scope of the arts is hidden by the details of special problems, obscured by a haze of technique, dwarfed by smaller but more immediate interests.

The professional study of the arts is in its infancy. The subject is comparatively young, its literature scanty and unscientific, its students for the most part of limited and special training and scarcely cognizant of the forces which are restating the fundamental principles of the arts. As a result, these teachers have yet to reach positions of importance in the educational world. Limited in the outlook and philosophy, they are classed as specialists and technicians, scarcely as educators.

Two patent reasons thus stand forth demanding professional study. One, the fact that it will raise the standards of the teaching class, will destroy their insularity, give them power in council, lead them to a broader and fuller scholarship; the other, that it will add to knowledge of the arts, aid in their propaganda aad assist in the erection of the general educational fabric.

The range of such study is indicated by what has been already said. It covers the philosophy, history and practice of the arts — their relations psychological, pedagogical and economic. All of these aspects must be touched upon by one who would be a profesional student of the subject — by one who would lead the professional life.

What makes up such a life? First, a cultivation of the professional attitude — a proper pride in one's work, not evidenced by strut or boast, but by a willingness to labor to uphold its dignity. To such a life broad study of the different phases of one's profession adds. Research work, original investigation adds. A comprehensive knowledge of its literature adds, as does a willingness to work and work hard that one may contribute to that literature.

Every teacher of the arts should be a student of the arts. Every student should set himself some problem each year, the solution of which will serve to increase the world's knowledge of the subject. Immense is the gain to the man himself — a widened interest, deeper sympathy, a keener insight. Advantage accrues to him from the very fact that he remains a student — one of open mind. Dr. Butler offers as five evidences of the educated man, power of expression in language, a high moral standard, power of insight and reflection, power of growth, and power of efficiency. Each of these is distinctly fostered and furthered by professional study. "High efficiency is," in his phrase, "primarily an intellectual affair."

The subject and time demand professional study of the arts. It is the business of all engaged in their teaching to aid. Every society like this should assist by demanding high standards in papers presented for consideration. Programs should be thoroughly considered and prepared well in advance, that all contributions may be clean-cut, clear, incisive chapters, worthy of permanent place in professional literature.

Education is largely a labor of love. Its highest reward is altruistic and subjective — a deep sense of satisfaction in the knowledge that aid has been given to others. To those who have given themselves to the teacher's life, the deepest gratification after any effort is in the realization that they have offered their best. To offer one's best one must remain a student.

Professor Charles R. Richards commended the movement for a broader study of the arts by the teaching profession. The teaching of handwork in the school had been shaped on the one hand by the psychological influence, which emphasizes method, and on the other by the economic influence, which gives greater prominence to subject matter. The tendency has been to think too much of *how* to do it and too little of *what* to do. The scope of professional study should include the whole field of arts and industries.

SUCCESSIVE STEPS IN THE STUDY AND TEACHING OF AN INDUSTRY.

A paper on this subject was read by Cheshire L. Boone, who strongly favored the pursuit of one or two industries throughout the school course as against the plan of taking up several lines of work in succession, each being dropped when another is begun. We cannot teach all industries, but may choose a few of those in most general use, adding, when practicable, one which is characteristic of the community. In following the successive steps of an industry a certain standard of excellence must be demanded, but an intelligent understanding of the whole subject is of first importance. In teaching architectural construction we should begin in the primary school with lessons on primitive dwellings, and gradually trace the development of the art through its successive stages to the buildings of the present day. Pupils should be taught to plan in three dimensions, regarding a house as a whole, and not thinking of floor plan and elevation as unrelated. Parallel with all constructive work should go progressive teaching of design. All designs should be for a definite purpose. Pupils should not work from blue-prints and never work out any original designs. In the last year large projects should be undertaken, thus putting to the test the knowledge and skill gained throughout previous years. Technique should be used to help the pupil express his own ideas. He must *think* in design and construction as well as in arithmetic or grammar.

Among the suggestions offered by Mr. Boone as to various lines of work which might be introduced in the school were the following: Building in metal and clay; work in concrete, plaster and staff; vessels in clay or metal; articles of sheet metal, soldered and riveted; projects illustrating machinery for the transmission of power and transportation. In illustration of the progressive teaching of an industry, the successive steps in claywork were given as follows: (*a*) in the early school years, simple objects and vessels of original design; (*b*) the making of the article permanent by firing; (*c*) historic ornament or ceramics; (*d*) use of the potter's wheel; (*e*) use of the kiln, making of the kiln by puplis; (*f*) different kinds of ware. Projects of ornamental work in staff for the high school were also suggested. The speaker believed that if industry were treated in this more thorough way more lasting results would be obtained, and the relatlon of the arts of construction and design to the curriculum would be more harmonious.

The exhibition of work, which is an important feature of these meetings, was on this occasion extremely interesting and varied, being composed chiefly of articles made by members of the club. James Hall showed a box and chalice of silver which he had made during the summer under the direction of Alexander Fisher, of Kensington, London. Some unique examples of weaving on a Swedish loom were exhibited by Victor I. Shinn. Besides samples, showing a variety of patterns in colors and overshot work, there were some very pretty light fabrics suitable for curtains, etc. W. M. Mohr gave a graphic description of the process of making pottery, illustrating his remarks by specimens of his own work in original and varied designs. These were made under the instruction of men who were masters of the trade. A short talk on sheet metalwork and enameling was given by Laurin H. Martin, instructor in metalwork in the Boston Normal Art School. The use of the steel hammer rather than the horn mallet was recommended, a flat-faced hammer being used to finish. Three principal processes of enameling were explained—one (Champlavé) in which the surface of the metal is cut away and the spaces filled with enamel; another in which spots are

depressed with the hammer and similarly filled, and another in which the enamel is laid on the surface. A number of beautiful specimens of this work were shown, consisting of boxes, buckles, trays, pictures, etc. Stanley A. Gage showed some very neat work in bookbinding including limp cloth covers and board covers in cloth and leather—a line of work which in its simpler forms could be done with few tools and little practice and yet is capable of developing a high degree of skill and artistic taste. Some fine examples of wood-carving by A. W. Garritt were prominent among the other articles displayed. An animated discussion of the exhibition at one end of the room and the refreshments at the other brought this very pleasant and profitable meeting to a close.

William F. Vroom.

CURRENT ITEMS.

Clinton S. Van Deusen.

The next meeting of the National Educational Association is to be held at St. Louis, in 1904. The dates for the meeting are not yet determined. A meeting of the Department Presidents is to be held in St. Louis about January 1, to formulate plans for the convention programs.

A somewhat remarkable innovation at the Massachussetts Institute of Technology this year is the new school for Doctors of Engineering. This degree, which has never before been given by an American institution, except *honoris causa*, will henceforth be given to students who have qualified themselves in any of the various departments of engineering research; and it is expected that the Eng. D. will henceforth take rank with the Ph. D. of the classical universities. No student will be graduated in this work who has not given proof of some actual contribution to the solution of a specific, industrial, commercial, or municipal problem. In other words, the Doctor of Engineering will be a man who has done special research work for the benefit of humanity.—*The School Journal.*

Karl von Rydingsvard, the well-known wood-carver and teacher, received pupils last summer at his studio in Brunswick, Maine. One of the fifteen pupils who were there writes enthusiastically of the spirit of Mr. von Rydingsvard's studio and of the beauties of the Maine coast.

A letter from Professor J. F. Hudson, of Hartley University College, Southampton, England, calls attention to the Rooper Memorial Fund. This fund is being raised to perpetuate the memory of the late T. G. Rooper, who for twenty-two years held the office of His Majesty's Inspector of Schools, first in the Bradford district, and later in the Isle of Wight. Mr. Rooper's excellent work made him well known throughout England, and his influence extended to other countries. The fund, to which teachers everywhere are invited to contribute, will probably be used to found a scholarship to be known as the "Thomas Godolphin Rooper Scholarship."

Prof. Calvin M. Woodward, of Washington University, has been elected president of the St. Louis Board of Education. This is the second time Dr. Woodward has been honored in this way. It was thought desirable to have a man in this

position during the Fair who is very closely associated with educational work, and such a man has surely been selected.

DR. GILBERT B. MORRISON, principal of the Manual Training High School, Kansas City, Mo., has been elected principal of the new McKinley High School in S . Louis. This school will be opened on the first of February. This is a fortunate appointment for St. Louis. Mr. Morrison takes with him an enviable record of remarkable success under difficult conditions.

THE Moseley Commission, a party of twenty-five educationists, recently came over from England to study the American public-school system. After a brief trip through the eastern states, they separated into several parties, each visiting a different portion of the country. They have now completed their work, aad a report of their impressions would no doubt prove of great interest to educational people.

DR. ROBERT H. THURSTON, director of Sibley College of Engineering at Cornell University, died suddenly October 25th as he was awaiting guests at dinner on his sixty-fourth birthday. His influence as engineer, teacher and author extended even beyond this country, and his death is a serious loss to Cornell.

The vacancy caused by the death of Dr. Thurston has been filled temporarily by appointing Prof. W. F. Durand as acting director. Prof. Durand has been the principal of the graduate school of marine engineering and naval architecture at Sibley College for a number of years.

THE Morris Society, formed in Chicago last spring, has for its president Dr. Edmund J. James, president of Northwestern University, and for its secretary Professor Oscar L. Triggs, of the University of Chicago. The general program of the organization is as follows: (*1*) To engage in publication; (*2*) to conduct an educational movement; (*3*) to maintain club-rooms and establish a Morris library and museum; (*4*) to promote the founding of workshops and schools of design.

THE National Educational Association is trying the experiment of publishing reprints of departmental reports. The secretary of the association states that the manual-training department reprint reporting the Boston meeting includes "all the papers presented at the joint sessions, making a pamphlet of about seventy-five pages"; he adds that it is probably the most valuable department reprint which he has on his list. These will be supplied to single addresses at ten cents a copy by mail; or in orders of ten or more copies to one address by prepaid express at a reasonable discount. Send to Dr. Irwin Shepard, secretary, Winona, Minn.

THE committee appointed to select a president for the Carnegie Technical Schools of Pittsburg, has reported in favor of Arthur Arton Hamerschlag, of New York. The salary will be $8,000 a year. Mr. Hamerschlag is a native of Nebraska and has taken special courses in physics aud mining at Columbia University. — *The School Journal.*

FRANK H. BALL, supervisor of industrial schools in Porto Rico, reports a favorable beginning of his work. His problems are much different from those of a supervisor of manual training here. In addition to directing work in manual training, he is encouraging the development of several industries. One of these is the making of jellies from native fruits; another involves the use of a native fibre.

NEW EDUCATION IN ROCHESTER, N. Y.

A LITTLE more than two years ago, when manual training was introduced in the schools of Rochester, N. Y., each school (thirty-four) was provided with a large cabinet, fitted with desk-trays and tools for elementary work of the lower grades, the first to the sixth grade, inclusive. These desk-trays have a new and unique device for holding the drawing paper to the top of the tray while the pupil is drawing, which, when the paper is removed, leaves the top free from cleats and clamps usually found on the older forms of desk trays.

For the pupils of the upper grades five centrally located schools were equipped and used as "centers" for the boys from neighboring schools. Each year since the work was introduced two or more schools have been provided with outfits, so that today there are fourteen schools furnished with benches and bench-tools. This plan of equipping one or two schools each year will be continued until every school is provided with an outfit suited to its needs. These outfits are the best to be had, and there is one interesting feature of which Rochester teachers are proud, and of which but few cities can boast; that is, each manual-training room is above the basement and on the first floor; in finish, light and location these rooms are equal to any in the school buildings.

Four years ago the Rochester board of education was taken out of politics by changing the number of school commissioners from twenty to five, and then electing four of the best people obtainable as commissioners; one of the five members of the board has worked alone in opposing the progressive majority. The present board of education receives no more money for school purposes than the old board, which did little but provide deficits. Still the new board has erected new buildings, added manual-training equipment, increased the salaries of all the teachers in the schools, given the city of Rochester a "new education", and each fiscal year is closed with a surplus.

During the recent municipal election the "new education" was the most important issue. The candidates that stood for progress were elected by large pluralities. The minority commissioner mentioned above was a candidate for re-election; he received the fewest votes of any man on his ticket. Beginning with 1904, Rochester will have an "ideal board of education." W. W. MURRAY.

THE JAMES MILLIKIN UNIVERSITY.

THE Decatur College and Industrial School of The James Millikin University, the new institution which was opened last September, at Decatur, Ill., is offering a four-years' course in manual training which embraces work in joinery, wood-turning, pattern-making, foundry practice, forging and machine shop-work.

The woodworking department is equipped with twenty-four benches and full completement of bench tools; twenty-four lathes, together with power saws and other necessary machinery. Instruction was begun in this department at the opening of the year, and about one hundred and fifty students are enrolled in the manual-training classes.

The forge shop with eighteen down-draft forges and the machine shop with a comprehensive equipment of hand and machine tools will both be in operation during the second term of the year, while the foundry and the special pattern shop will be fitted up as soon as required.

The manual-training work is organized primarily as a preparation for the schools of engineering of the College proper, and two years of shopwork are required for en-

trance to the engineering courses. By far the larger number of students enrolled in the manual-training courses are preparing for the engineering professions, or to occupy positions as mechanics, but others are encouraged to take this work as part of a general education, and due credit will be given in both the arts and science courses to those who elect manual training.

A class composed of sixteen teachers from the public schools of the city has also been formed, and is taking up a special line of work particularly adapted to the needs of its members as teachers in the various grades and in the high school. This class was organized largely in anticipation of a movement which is on foot to introduce manual training into the public schools of Decatur.

It is proposed to offer a normal course for the training of manual-training teachers beginning September, 1904, particulars of which will appear in the University publications later in the year. This course will include instruction in both the technique and theory of manual training, and at the same time provide opportunities for practice teaching on the part of the students, and for the special study of manual-training problems, that its graduates may be thoroughly prepared to take positions as teachers and supervisors of manual training. CHARLES H. BAILEY.

NEW YORK CITY.

TWO scholarships have been founded at Teachers College for students of the Tuskegee Normal and Industrial Institute. The present holders of them have been teaching at Tuskegee and will return there after leaving Teachers College.

THE contract for what will probably be the largest school building in this country and perhaps in the world was recently approved by the board of education. This school will be known as school No. 62, and will be located on Hester street. The building will be six stories high, will have a seating capacity of 4500 pupils and will be in charge of a corps of 124 teachers and two principals. It will be a thorougly modern school building, and the site and building will cost over a million dollars.

MISS AMANDA STOLZFUS has given up her work in the Speyer School and has gone to Knoxville, Tennessee, to take charge of the manual-training work in the model school connected with the University of Tennessee.

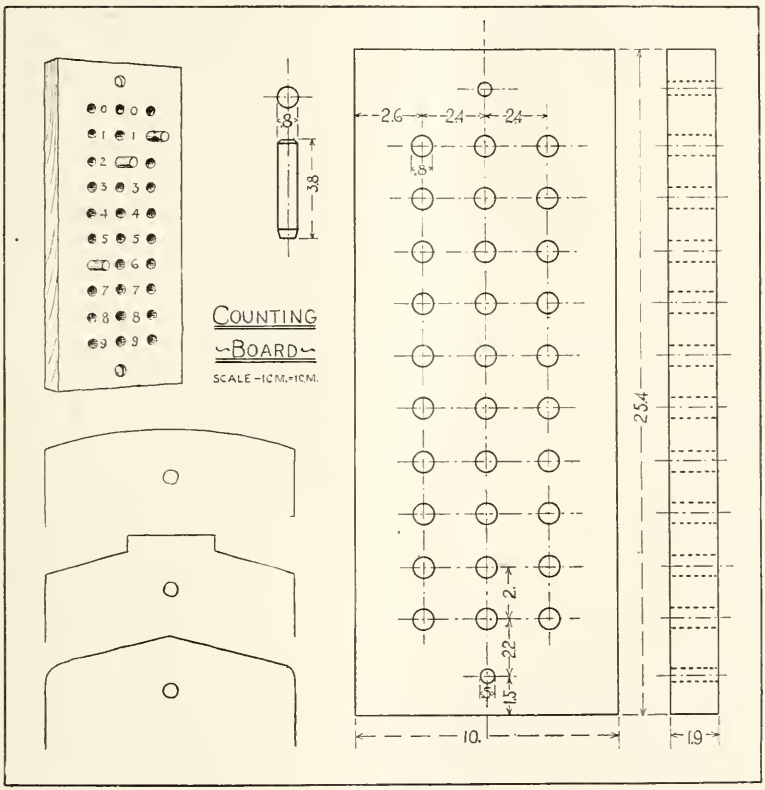
PEORIA.

BRADLEY POLYTECHNIC INSTITUTE has decided to open a summer school of manual training for teachers. Seven courses in tool work will be given in 1904, covering processes suitable for primary, grammar, and high-school grades. To these will be added a course in "History and Organization of Manual Training," which will deal with principles, methods, courses and equipments.

ON October 12th, a company of teachers interested in manual arts in education, met to discuss the formation of a club. As an outcome of the meeting a club, called the School Crafts Club, is now well organized, two very interesting meetings having been held. Chas. A. Bennett has been elected president and Miss Maud C. Olmstead secretary and treasurer. The object of the club is to stimulate an interest in manual arts in the community and to provide another means of mutual benefit to club members through the discussion of their work. The club is to hold six meetings during the year, these meetings to be held at the homes of the different members.

BREVITIES.

I am a great stickler for higher education, but I want to tell you this: The opportunities of to-day are better than ever for boys to get a practical education—an industrial education—and I would rather my own boy grew up able to build a great bridge like the Brooklyn bridge than to receive the highest honor the people could bestow upon him.—*Grover Cleveland.*



COUNTING BOARD.

Many a teacher has found great difficulty in deciding upon a first model for his course in benchwork in wood. The counting board shown in the accompanying illustration has been used for a first model during the past three years at Bradley Polytechnic Institute. It was designed by Clinton S. Van Deusen, to include laying out, sawing and boring, but not planing, the stock being given to the student planed to width and thickness but not cut to length. It was suggested to Mr. Van Deusen

by the counting device he used to see on a threshing machine when he was a boy in New York state. It was used to keep track of the number of bushels of grain threshed out. A similar device is used at the present time in one of the cooper shops in Peoria for counting barrels.

The right-hand row of holes (ten in number), is the units column; the middle row is the tens; and the left the hundreds. It will be seen, therefore, that this board is capable of keeping count up to 999. The board and pins may be made of pine. The pins are made round by driving them through a dowel plate. Each is driven through twice—first through a hole the same size as bit with which the holes in the wooden block are bored, and then through one enough smaller to make the pin move easily in the holes. The dowel plate is made by drilling holes of proper size through a piece of steel $4 \times \frac{3}{4} \times \frac{3}{8}$ in.

If this model was to be placed later in the course, it might be made of gum wood or poplar and have its ends modified as suggested in the sketch.

COST OF HAND TRAINING.

In a recent address, Capt. C. E. Vawter of the Miller Manual Labor School at Richmond, Va., gave some pertinent figures as regards the cost of hand training.

"The cost of the kindergarten," he said, "is the teacher who can teach four or five classes per day. The equipment in the kindergarten need not exceed ten cents per pupil a year."

The manual training in the four lower grades should be taught in the regular schoolroom by the regular teacher at an average cost not exceeding one dollar per pupil a year, even if the equipment lasts only one year. This should include clay modeling, paper construction, cardboard work, drawing, designing, whittling, sewing, weaving, basketry, and water-color work.

The cost of thirty pupils can be formulated as follows:

SUBJECT.	EQUIPMENT.	MATERIAL.	TOTAL.
Construction in Paper	$ 8.70	$ 8.00	$ 16.70
Construction in Pasteboard	13.65	2.00	15.65
Clay Work	1.80	1.80	3.60
Basketry and Weaving	3.00	4.20	7.20
School of Whittling	90.00	6.00	96.00
Benchwork	330.80	37.40	368.20

Exercises might be carried on in the fifth grade in some of the above, and have it include the designing and making of models.

The regular teacher can do all this work in the lower grades. The higher grades will include the school of whittling and the benchwork, and will require a special teacher, who can give instruction in either of the departments to 600 pupils, if one lesson of ninety minutes is given a week, and to 300, if two lessons of ninety minutes are given each week. This would cost per pupil $0.66 for 300 pupils and $1.33 per pupil for 600.

The regular teachers can teach all the drawing with an equipment costing on an average of one dollar per pupil, and fifty cents a year for material. The equipment will last for several years, while the material is estimated for only one year.—*School Journal.*

REVIEWS.

Industrial-Social Education. By William A. Baldwin. Milton Bradley Co., Springfield, Mass., 1903; 9½×7 in., pp. 147: illustrated; price, $1.50. This book by Mr. Baldwin is a real contribution to educational literature in general and to the manual and industrial sides of school work in particular. The main thought contained in the book finds a ready response in many minds, but as yet very little has been written on the subject, and hardly at all has it been carried into practical effect.

The volume does not set forth courses of study but deals with the problems that have presented themselves at the Hyannis, Mass., State Normal School; with suggestions as to possibilities in the various hand-work processes. The author, while realizing fully the industrial significance of the time, sees clearly the demands of society and the place of the child as a social being. A description and history of the new movement at Hyannis is set forth, and the author shows how the work has been made to correlate with the other subjects in the training school that is carried on in connection with the Normal school. It is believed that the needs and demands of the child should, in large measure, determine the contents of the curriculum; that education should be of such a nature that what is learned will run parallel with the needs of later life; that its school should be thought of in connection with and not as apart from the home and future life of the individuual.

That activity must grow out of the life of the child, the writer has no doubt. Hence the child should present the problems and the teacher should stand ready to assist and direct. The kinds of work should be many and varied and no fixed course is to be prescribed. "We believe," says Mr. Baldwin, "that no outline should be duplicated in two different places, or in two different years. Such duplication leads to formal teaching and spiritual death. We prefer to keep the flexibility and adaptability of life, even if the external results are crude and unfinished. The motto of the school is, 'a live child in a live school.'"

Three propositions are laid down by Mr. Baldwin:

First: The attitude of the child should be carefully considered.

Second: The kind of work should be adapted to the environment of the child and connect the school life with that of the home and the community.

Third: Manual training and physical training should furnish the center or basis for the school and home life of the child.

Much of the present school work is purposeless, says the writer. Adherance to system is to be deplored. In this respect the trade school is characterized as being more truly educational than is manual training in the regular school.

In addition to the chapters setting forth the value and necessity of an industrial-social view of education, much practical advice and suggestion is made by various teachers of the Hyannis school, all having united in the educational experiment. School gardens, play-house occupations, weaving at the loom and with raffia; sewing; baskets and other objects made of raffia; splints, and rattan; making of hammocks, etc.: these are lines of work given some attention, and the illustrations add much to

these chapters. The suggestions on garden work are especially helpful, and the schemes for correlation are rational. A chapter on vacation schools closes the book. A delightful introduction has been contributed by Henry Turner Bailey, who has watched the work at Hyannis and speaks in strong terms of the results thus far reached.

"Industrial-Social Education" may offer little that is new as to kinds or processes of work for the school. The book may be, as the author suggests, "like the work, fragmentary and lacking in artistic finish," but withal it sets forth in a straightforward manner the point of view with which, more and more, we are finding a deeper sympathy. A thorough student of Colonel Parker and of Doctor Dewey, Mr. Baldwin seeks to show that content rather than form should characterize our school work; that the child is a social being and that the larger society of school, home, and active life can best be perfected by carrying to the child in school that which is best suited to his development.

THROOP POLYTECHNIC INSTITUTE, Pasadena, California. ARTHUR HENRY CHAMBERLAIN.

How to Make Indian and Other Baskets. By George Wharton James. Henry Malkan, 1 William Street, New York City, 1903. 6⅜×9⅜ in.; pp. 136, 220 illustrations; cloth; price $1.00, *net*, postage 10 cents.—Intended as a practical manual of basketry, this work brings together in one volume for the use of the student a large amount of material upon this subject. No attempt is made to present courses in basket making but rather the handling of materials and the methods of making the various kinds of baskets. For convenience in discussion, the various processes in basketry are classified as follows: The Mat Weave, The Plait or Braid, The Net, The Coil Weave, The Web Weave, and Insertion and Borders; and a brief chapter is devoted to each. Other chapter headings are: The Choice and Preparation of Materials, Splint and Sweet Grass Baskets and Dyes.

The author states in the introduction: "For material for these pages I have ransacked everything I could find;" and in fact much matter is introduced bodily from various sources.

Prominent in the book are a number of illustrations of beautiful specimens of Indian basketry and of the handiwork of the Deerfield (Massachusetts) colony of basket makers. Side by side with these, in some instances, are given photographs of baskets representing the work of Teachers College students. Mr. James' visit to Teachers College occured in the fall of 1902, too early in the school year to obtain a representative exhibit of the work done there; hence, the unsatisfactory impression produced by these photographs. The discerning reader, however, will not fail to note the incongruity of illustrating in too close proximity "raffia bound picture frames" made of cardboard and the highly finished product of the Deerfield shops.

It should be stated that this work is a reprint of the January 1903, (vol. 1. no. 1) number of "The Basket", issued quarterly by the Basket Fraternity, Pasadena, California; price for this number in paper, 75 cents. The same is also now included in the latest edition of Mr. James' larger work "Indian Basketry"; cloth, 8 vo., price $2.50 *net*, postage 25 cents.

ILLINOIS STATE NORMAL UNIVERSITY, Normal, Illinois. WILLIAM T. BAWDEN.

The Making of our Middle Schools. By Elmer Ellsworth Brown. Longmans, Green & Co., New York, 1903; 5¼×8¼ in.; pp. 547+XIII; price, $3.00.—This book begins with an account of the Latin grammar schools of Old England, shows how they influenced early colonial schools in this country, and then traces the development of the two distinct types of our schools for secondary education—the academy and the high school. School administration, state systems, and special movements also are considered. The book closes with two chapters on recent tendencies, one on school life and studies and another on the present outlook. Although the author modestly and perhaps wisely refrains from dignifying his book with the title of history, it is in many respects the best history of American education. It is at once scholarly and agreeable to read; it points out causes and vital relation that throw light upon many of our problems of today.

Many paragraphs of special interest might be pointed out. In the chapter on the grammar schools of Old England, for instance, one learns that Leach, a sixteenth-century writer on education, argued for Latin in the schools because of the number of occupations in which Latin was needed. Latin was employed not only in diplomacy and the learned professions but a merchant, or the bailiff of a manor, wanted it for his accounts; every town clerk or guild clerk wanted it for his minute book. Columbus had to study for his voyages in Latin; the general had to study tactics in it. The architect, the musician, everyone who was neither a mere soldier nor a mere handicraftsman, wanted not a smattering of grammar, but a living acquaintance with the tongue, as a spoken as well as a written language. How much this sounds like the arguments used today in favor of any subject that is looking for wider recognition in the schools!

Again, in the same chapter another writer of the same period is quoted who points out the value of a general education. In reply to the statement that the lower classes should be trained only for their calling in life he says: "it may be seasonable to interpose, whether there be not a general as well as a particular calling. All * * * * ly under some duty towards God and man. * * * * That any nation can be too universally learn'd in the law of well-being, would be * * * * hard to be conceived." This is an early suggestion of the system of general education that has become the cornerstone of the American Republic.

These paragraphs merely suggest the fact that a great amount of thorough research work had to be done by the author before writing this valuable book.

CHARLES A. BENNETT.

The Art of Pattern Making. By I. McKim Chase. John Wiley & Sons, New York, 1903; 5×7½ in.; pp. VI + 254, 215 figures; price, $2.50.—A technical treatise on pattern-making, dealing with numerous examples for green-sand, dry-sand and loam moulding. Some of the first chapters discuss the equipment and management of a modern pattern shop. Following this, several complicated problems, such as the making of patterns for marine engines, gun-mount pedistals, screw propellers etc., are explained in detail. In the closing chapters of the book many useful rules and tables are given that would be of value to the practical pattern maker.

The book is in no sense a text book and its place in schools will be as a reference book for advanced courses in pattern-making.

BRADLEY POLYTECHNIC INSTITUTE, Peoria, Illinois. C. S. VAN DEUSEN.

Little Masterpieces of Science. Six volumes edited by George Iles; Doubleday, Page & Co., New York, 1903; 4¼×6½ in. pp. about 175 per volume; $ .75 net, per set $4.50, net.

Vol. I.—The skies and the Earth—Richard A. Proctor, Simon Newcomb, Charles Young, George Iles, Sir Charles Lyell, Nathaniel S. Shaler, Thomas Huxley.

Vol. II.—Invention and Discovery—Benjamin Franklin, Michael Faraday, Joseph Henry, Alexander Bell, Count Rumford, George Stephenson.

Vol. III. The Naturalist as Interpreter and Seer—Charles Darwin, Alfred R. Wallace, Leland Howard.

Vol. IV. Explorers—Justin Winsor, Lewis and Clarke, Zebulon Pike, Charles Wilkes, Clarence King, John Powell.

Vol. V. Health and Healing—Sir James Paget, Sir J. R. Bennett, P. Geddes, J. Arthur Thomson, T. M. Prudden, G. M. Sternberg, Robson Roose, B. W. Richardson, Buel P. Colton, J. S. Billings.

Vol. VI. Mind—John Fiske, James Sully, Francis Galton, W. H. Hudson, O. W. Holmes, Henry Maudsley, Wm. B. Carpenter.

This is just such a series of books as every general reader needs in his library. Indeed, many specialists in science do not possess a library covering the classics of such a wide range of subjects. The material has been carefully selected so as to present the stories of the greatest triumphs of invention, discovery and exploration as told by the men who made them. This gives a first-hand quality to each chapter which is most satisfactory. The editor is an enthusiastic student of science and an able writer. The books are printed on a high grade of paper with good margins and simple headings; each volume contains a portrait frontispiece. They are compact, convenient and inviting.

CHARLES A. BENNETT.

Stories of Great Artists. By Olive Browne Horne and Katherine Lois Scobey. The American Book Company, New York, 1903. 7×5 in.; pp. 157. Illustrated. This is one of the attractive school readers of the year. As stated by its authors, the aim of the book is æsthetic and ethical rather than utilitarian. It is intended to supply a hitherto unfilled need of reading supplementary to picture study in the third and fourth grades. In simple language the authors have presented the masters of the brush surrounded by the glamour of tradition. The book contains twenty-nine illustrations, selected from the works of Raphael, Michael Angelo, Rembrandt, Reynolds, Carrot, Millet, Landseer, and Rosa Bonheur. It is to be hoped that the little book will accomplish its worthy purpose. This is equivalent to the wish that it may always fall into the hands of wise teachers.

The following have been received:

The Tree Dwellers. By Katharine Elizabeth Dopp. Rand, McNally & Co., Chicago, 1903. 6×7¾ in.; pp. 158.—Reserved for later notice.

Year-Book; Council of Supervisors of the Manual Arts, 1903. James P. Haney, Secretary, Park Avenue and 59th Street, New York. 7×10 in.; pp. 158+12 for notes; price, $3.00.—Reserved for later notice.

Wood-Carving Design and Workmanship. By George Jack, with drawings by the author and 16 collotype plates; No. III in "The Artistic Crafts Series of Technical Handbooks", edited by W. R. Lethaby. D. Appleton and Co., New York, 1903. 5×7½ in.; pp. 311; price, $1.40 net. Reserved for later notice.

MANUAL TRAINING MAGAZINE

APRIL, 1904

MATHEMATICS IN THE MANUAL-TRAINING HIGH SCHOOL.

CHARLES F. WARNER,

THE ultimate effect of the manual-training movement upon the secondary school system of the United States is not yet clearly indicated. In this, as in all educational reforms in this country, there is lack of uniformity of effort. Wide variations may be observed in the organization, the policy, and the product of all schools; but probably in none are these variations more evident than in those in which the manual element is recognized. This is what should be expected at the present stage in the developement of this reform. Though there may be substantial agreement on some points, the courses of instruction in manual-training schools are still somewhat experimental as regards both the nature of the subjects taught and the relations of each to the general scheme. The manual-training idea, however, is universally acknowledged to be an element of vital importance in the modern public school. Professor James, the psychologist, says, "The most colossal improvement which recent years have seen in secondary education is the introduction of the manual-training school." As a governing principle in education the practical element has come to stay; but concerning some very important matters of detail — such questions, for example, as, what subjects of study are most profitable; what kinds of mechanical work are most valuable; and what features of both should be emphasized — there is such a lack of agreement in opinion and practice that we shall probably wait many years yet to see realized in our high schools a complete and consistent combination of the best ideals of the new education. Experiment, discussion and criticism must go on. That is the way Americans make

progress in education as well as in other things. Our faith in democratic institutions compels us to believe that ultimate improvement will come in the public school system as the result of this great variety of educational experimenting, this endless discussion and searching criticism.

But the very effort to improve sometimes over-reaches itself. It has led to an over-estimation of the value of certain lines of work, to an under-valuation of others, and to a neglect, sometimes, of the most natural means for enlarging the educational output. It is the object of this paper to point out one of these dangers and a way of obviating it.

The manual-training high school has come, for the most part, in response to a natural demand for a modification of our secondary schools, which should bring them into touch with the life of the present day. To what extent the methods and processes of modern industries should be taught in these schools is at present a somewhat unsettled question; but it is generally agreed that there is no place in our system of secondary education for trade schools, certainly not for the kind usually called by that name. The aim of the new high school should be educationally broad, though practical. Such an aim removes at once the possibility of thorough special training in these schools along limited mechanical lines such as a boy might expect to get if he went directly from the elementary schools into the shops. On the point of trade training in a strictly mechanical sense, it must be admitted that the manual-training school boy is, and must remain, distinctly inferior to his shop-trained brother. Is it not, therefore, most natural to inquire what points of superiority over the shop apprentice he can be expected to derive from his school training which may justify the large expenditure of time and money which are being made on his account?

To make the question more pointed, suppose two young men of equal ability, one with four years of good shop training, the other a graduate of a four years' course in a manual-training high school, are employed by a just and discriminating shop superintendent. What ought their employer to expect of these two young men? Obviously, he will expect the one who has served a four years' apprenticeship in a good shop to have a practical knowledge of the machines and tools of his trade, or of those required in some department of it, and to know how to use this knowledge with a certain efficiency and skill. He will hardly expect him to know anything else, or at least not require of him further knowledge. He may expect him to read intelligently the working drawings placed in his hands, but he will not look for much knowledge of the principles of design, nor will he expect of him any facility in mathe-

matics, excepting such as is absolutely essential to the intelligent operation of the machines and tools he is to make use of. Now, if we turn to the other young man, it is equally obvious that his employer will not expect him to know any trade, or any portion of a trade, well enough to enter into competition at once with the shop-trained apprentice and keep pace with him in the same class of work. Three things, however, he will expect of him — first, that he will be able quickly to overcome his deficiencies of technical training in the same line as that followed by his rival; second, that he could do the same thing in several lines of work, if called upon to do so, and thus soon outclass the shop apprentice in the range of his accomplishments; and, third, and most important of all, he will expect him to show evidence of having been furnished with a certain training in the scientific and mathematical principles which underlie the trade which he is to follow, and to have some knowledge of the principles of design as applied to the machines and tools he is to use, as well as to the constructive work he will be called upon to do in the practice of his calling. If he has this latter knowledge and training, it is evident that a wise superintendent will mark out for him a much broader range of work which, other things being equal, will soon enable him to rise above his associates who have had merely shop training, to become in due time a foreman or even a superintendent. Such a result should be expected of the four years of work in the manual-training high school, so far as it concerns those boys who are destined for employment in the manufacturing industries. To what extent is this expectation realized? In how many of our manual-training high schools is there practical recognition of the full significance of the comparison which has just been outlined?

In these schools the boys will invariably be grouped into three classes: first, those who are preparing for higher training in colleges or schools of technology and engineering; second, those who are looking forward to a mechanical trade, with more or less of a definite purpose; and, third, those who have formed no definite plans as to the future, but have elected the manual-training high school course because it appeals to their interest, especially on account of the scientific and technical work offered, and seems to furnish, at the same time, all the essentials of the education given in the best of the older high schools. With the boys who are preparing for higher technical and scientific training, we are not concerned in this discussion. Their course is marked out for them by the admission requirements of the schools of college grade, which must assume the responsibility for their professional training.

But with the second class of boys — those who wish to become skilled mechanics or to engage in the mechanical industries in some capacity — we are deeply concerned; and for the third class — those mechanically inclined, but having less definite purposes for the future — we may find scarcely less cause for modifying our plan of teaching. Taken together, these two classes of boys constitute those for whose education and training, primarily, the manual-training schools came into existence. That it has held their interest and met their needs in large measure is not to be questioned. Nor can it be doubted that some important needs have been overlooked, some opportunities missed. In fact, it is justly charged against the schools that, notwithstanding all they have done, they have, generally speaking, perpetrated the one great fault that they were supposed to be able to correct, namely, the inability of the average boy to apply his elementary training in arithemetic and his knowledge of algebra and geometry to the practical problems of the shops and the laboratories. This is the universal complaint of the teachers of science, of drawing, and of all departments of the mechanic arts. The same deficiency is recognized outside the schools. A remark of the president of one of the trades union federations is to the point. Speaking of manual-training schools, he said: "Since they teach the boys how to do nothing in particular, they do no harm." We must infer that, in his opinion, they would be doing harm if they taught boys to do something in particular — that is, if they gave their young students such a grasp upon the real problems of the industries, that at graduation they are found to be in quick demand in the labor market, thus threatening the stability of the unions. But this is the distorted view of the paid promoter of labor trusts. American citizens, whether members of the trades unions or not, wish their sons to have the best that the schools can give, and they will welcome any effort to give greater effectiveness to the work of the manual-training schools, as well as to the work of all others. How to secure this greater effectiveness, especially how to teach the manual-training school boy to make prompt and efficient use of the instruction which he receives in the various mathematical studies, is at present a serious matter of inquiry among many whose business it is to direct and improve the work of these schools.

One cause of the failure of manual-training schools to reach that degree of efficiency in teaching the applications of mathematics that was expected of them may be found in the fact that, in planning the courses of study for these schools, little or no change was made in the method of presenting mathematical subjects. The same kind of books were intro-

duced as were used in the older schools — books written almost entirely from the point of view of the teacher of pure mathematics, with little reference to the concrete problems of life, and having no reference whatever to the actual problems of the drawing room or the shop. In the classroom work the mathematical departments of these schools have generally failed to make use of the rich opportunities afforded by the shops and science laboratories to fix a knowledge of mathematical principles by concrete illustration and practice.

In defence of this method it may be said that teaching by concrete example is not the duty of the teacher of mathematics — that this should be done by the instructors in shop practice and by the science teachers. To this objection the teachers of shopwork and of science will at once reply that when they attempt to do this they find their pupils lamentably weak in the knowledge of mathematical principles and in the art of computation. As a matter of fact, it is no more the fault of one department than of the other, that there is such an acknowledged lack of power to do the ordinary sums of arithmetic or algebra, or to apply the principles of geometry in ordinary practical problems. So far as manual-training school boys are concerned, pure and applied mathematics are one and the same thing; or, in other words, it is the duty of every teacher concerned to see that the individual pupil thoroughly understands the underlying principles of whatever work he is doing whenever he meets with difficulties. Nothing is gained by pushing the responsibility back upon associate teachers in other departments or by complaining of defects in elementary preparation. A moment's reflection will reveal the fallacy of such a course, for it might start with the college or university professor and apply equally well all along the line down to the kindergarten. At all events, the secondary teacher in any department does not escape blame under such a system, if he allows pupils coming to him with important deficiencies to pass on to higher departments without thorough correction and repair. Evidently the thing for every teacher to do is to blame no one below and put his own teaching so far as possible beyond the danger of just criticism from other departments, whether above him or not; and certainly the best time for young pupils to make up deficiencies and repair foundations is when they are brought face to face with the practical necessity for it.

Another cause of the failure of manual-training school pupils to meet practical mathematical requirements may be found in the temptation which naturally comes to these schools to endeavor to substitute mere mechanical training for book work or for studies which do not at once

appeal to lazy, indifferent, or backward boys. There is acknowledged need for special courses to meet fairly the special conditions referred to; but it is a misconception of all the requirements of the case to suppose that mere shop practice without the mastery of the underlying mathematical and scientific principles will prove successful in the long run. What we need to do is to keep laying and re-laying the foundations in the class rooms, in the shops, and in the laboratories for four years or more if necessary, making use of such concrete illustrations as are afforded by practical exercises to enforce an understanding of principles and an appreciation of the necessity of understanding them. It may be wise to cast aside in some cases the old-time algebras and geometries which, as such, are often incomprehensible to boys; but there must be substituted for them not practical work stripped so far as possible of all reference to mathematics, but rather practical work which is distinctly planned to make up for the lack of mathematical study of the usual classroom form. If the manual-training schools do their full duty they will see to it that those of their pupils who do not readily grasp mathematical ideas when presented in their usual form, whether from a distaste for study or from apparent inability, shall, nevertheless, lay all necessary mathematical foundations in some other way. Taught mathematics in some way they must be, if, as has already been pointed out, the manual-training school graduates of this class are to derive from their four years of school work any marked advantage.

The practical necessity of special attention to mathematical requirements, especially in schools in which technical and scientific instruction is a distinctive feature, may not be fully met by such improvements as are possible in the usual methods of teaching mathematics. A special department of applied mathematics may be required. In fact, such a method of meeting this need is now being tried with every promise of success. It has been the practice of the Mechanic Arts High School of Springfield for the past two years, not only to enrich the regular work in mathematics by concrete illustrations drawn from the exercises of the shops and the science laboratories, but also to offer a two years' course in applied mathematics. The junior and senior years have been selected for this work, and the teachers have been men who have had several years of valuable experience in modern shop and drawing-room practice. For such work it is necessary to have men who combine teaching ability with expert knowledge and experience. In this course care has been taken to thoroughly revise the early foundations by reviews in arithmetic, algebra, and geometry, with special reference to practical

applications. Common and decimal fractions, square and cube root, fundamental algebraic formulas, and other essential subjects, have been taken up again and all the common principles of arithmetical calculation have been enforced by classroom practice. This has given an excellent opportunity to patch up defects in the earlier training, to supply deficiencies, to employ the reasoning faculty as it never had been employed before, and to see the relations between the various branches of elementary mathematics. To this has been added a study of simple trigometrical functions as related to the right triangle only. The constant aim has been to enforce such principles only as are certain to be called into frequent use, and to cultivate accuracy in the calculations based upon these principles.

The course has also included a review of the important principles of physics and mechanics. The fundamental principles of energy and its transfer, of work and its applications in the mechanical powers, have received full discussion and have been enforced by practical problems. There has been much practice in the calculation of power, making use of the common unit, the horse power, and giving due attention to the corrections necessary to apply in practice. Calculations upon the strength of materials have been made. These have been based upon the composition, upon the method of manufacture, and upon actual tests in shop practice. The principles of pneumatics and hydraulics have been reviewed in the study of modern machines involving these principles. The design, construction and operation of steam power plants have received attention, also the transmission of power by ropes, cables, belts, chains and shafting, and the mechanical principles connected with the generation and transmission of power by dynamos and motors. All this work has involved the study and description of a great variety of machines used in the shops, both for woodwork and for metalwork.

Another important division of the work has been the calculations required for specific operations called for in the shop exercises — such as those required for exercises in screw-cutting, taper-turning, boring, and those involved in determining cutting speed and feeds, in finding the weight of stock required for the various exercises, in determining the size and character of tools needed, in the production of square and hexagonal shapes from round stock — and many other problems of like nature. The variety and range of work that it has been found possible to accomplish, in advance as well as in review, has exceeded the highest expectations of the originators of the plan. A large number of technical books has been used for reference, for no single text-book can be

found covering this field. The teacher's note-book has formulated the details of daily instruction. The students have manifested an encouraging interest in all features of this work. It has cost them not a large expenditure of time and no sacrifice of work in other important departments. The time required for the work in applied mathematics has been taken from their extra allowance for shop practice. This has been fully made up in the increased efficiency of all the regular mechanical work. No feature of the work of the school affords greater present satisfaction or greater promise for the future.

MISSION FURNITURE IN MINIATURE.

ELI PICKWICK, JR.

AN alert teacher of manual training is anxious to encourage every indication of desire on the part of any pupil to think for himself, to do individual work. Occasionally a pupil comes brimming with interest and enthusiasm over some scheme of construction that he wants to work out to serve a purpose that seems to him to be pre-eminently fitting and good. The outworking of such a project, under the guidance of his teacher, should result in just the best kind of individual thinking and doing. The teachers' problem is to get the class, or at least a great per cent. of the class, aroused and enthused to such a pitch that individual work will be the rule rather than the exception. Once the vantage ground of a great, an absorbing interest is gained, there is no work of brain and hand that is not cheerfully, enthusiastically undertaken in the consumation of the desired end.

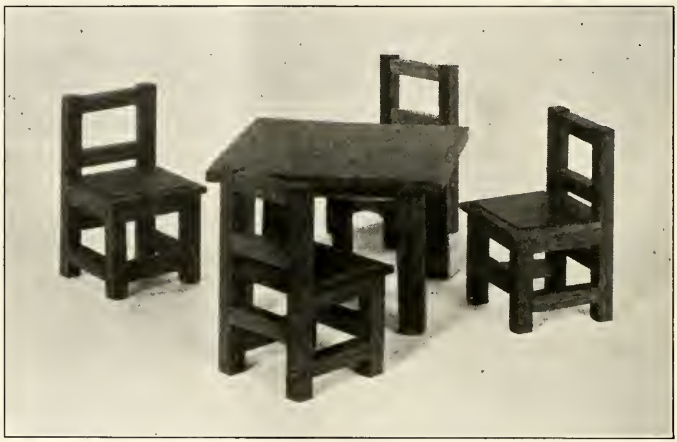
In the following experiment the *stimuli* to interest were at least novel, and the interest manifestly genuine, leading in a straightforward way to good individual work.

A month or more before Christmas, just as the stores were setting in array promises of the coming holiday, a group of poorly-clad little folk, gazing longingly at the wonders displayed, suggested the thought that we might contribute toward the sum total of Christmas cheer if the children in our manual-training classes could make suitable gifts for children less fortunately circumstanced than themselves. Here was something worth the doing if the right arrangements could be made. Permission was readily granted by our superintendent of schools to use part of our materials and energies for the object desired.

We next found some sixty children about whom we were able to gather sufficient information to make our gifts personal. These children were in our own schools, in hospitals, and in orphan homes. Only volunteers were allowed to do the work. The responses were most gratifying. Whole classes wanted to help. We made handkerchief and necktie boxes, game of ring toss, wagons, wheelbarrows, sleds, Christmas picture mounts and frames, jumping jacks, and doll furniture. The construction of the toy furniture, which made up a large proportion of our gifts, lent

itself in an admirable way to the solution of the problem of getting from a class individual thought and work, all related to a common scheme.

The class was made up of sixth-grade boys, averaging twelve years of age, coming from good homes, familiar with the simple straight-line "mission" style of furniture. The first problem presented was the making of a set of dining-room furniture, consisting of a table and four chairs. The material furnished was butternut, in strips ¼ inch and ⅜ inch



square, and pieces ¼ x 5¼ x 5¼ inches. Butternut was used because it has an interesting grain, has a charming natural color, looks well when finished with linseed oil, and is soft enough to admit of fastening with wire brads, even at the hands of boys of above age. Beside a common whittling equipment this class had access to small mitre boxes and back saws.

The first thing to be considered was the problem of design. In the case of the table the limit of size of top was fixed at a 5-inch square, this being the width of the wood furnished. Comparing this top with a common dining-room table 4 feet square, the scale of the furniture was readily determined as 1¼ inches to the foot. Next was developed the height of table top from the floor, resulting in the class deciding to make the legs 3 inches long. In a similar way the length of the rails was determined. By comparing the relative height of a table top and a chair seat the first dimensions of the chair was obtained, and from that by scale the other parts.

A point brought out by one member of the class, that a high post at the back of the chair would interfere with service at the table, resulted

in the chair backs being made relatively low. After the class study the work of making tables and chairs was divided among the pupils, each making one or more objects.

The dining-room sets looked so very fine when finished that enthusiasm ran high, and opportunity was ripe for a further venture. A suggestion that a library or living-room set be made was at once adopted. After talking over the problem in a general way, and deciding on the

pieces of furniture that would naturally go to make up such a set, each boy was given the task of designing and building some one special piece, the teacher acting as consultant to all. Each pupil was encouraged to get as much information as possible on the object assigned to him before beginning his design. This entailed a study of furniture at home, visits to the furniture and department store where furniture of the "mission" type might be seen, and the making of dimension sketches, and translating them into the language of the scale they were to use.

The table, after proper observation and study, was made with an oblong rather than a square top, the legs being tied together with rails near the floor in a very characteristic fashion. The chairs took on an air of less rigidity and more comfort—becoming to a chair for the living room—by using a leather seat and back, the leather being fastened to the frames with small brass escutcheon pins.

At first the problem of the Morris chair was not mentioned, but when the other work was well under way, and the spirit in it was of the best, two or three boys asked if they might not try it. Consent was given, and very creditable Morris chairs resulted, with their hinged backs regu-

lated to the proper inclination by a tiny strip or rod fitted to notches in the arms, in approved style. The girls contributed the reversible cushions for Morris chair and settee, and also the pillows for the couch. The couch involved the sawing, at an agle other than 90 degrees, to make the head. A failure in the first instance sufficed to show the necessity for very careful measuring and accurate cutting, and pointed the way to final success. The stool was brought to the class as a surprise contribution, it having been made at home by a pupil who had saved bits of wood and leather too small to be of use in the other articles.

Another class of the same grade took up the problem of the doll's bedroom furniture and furnishings, resulting in some very excellent individual work. Beginning with the crib, or bedstead, making a class study of it, assuming one dimension, and from it getting the scale by comparison, the work advanced in a way very similar to that already described. The individual problems of chair, rocking chair, chiffonier, bureau and wash stand followed in order after the crib, the last three pieces being worked out in thin wood with the knife, the parts glued or bradded as in our regular six-grade work. In this class the girls as well as the boys became intensely interested, and contributed many sewn articles to the furnishings of the bedroom, among them mattresses, bolsters, pillows, sheets and slips. They even went to the extent of buying a doll to fit the crib, and made for it a complete outfit of clothing.

The beautiful thing about the whole matter was the spontaneous offer of service on the part of the pupils, who were manifestly made as happy in their labor for others as were the recipients of their gifts. Of the abiding joy of the latter it is needless to write.

THE DANISH SLOYD SYSTEM AND ITS FOUNDER.

J. H. Trybom,
Director of Manual Training, Detroit, Mich.

WE hear a great deal about the Swedish sloyd system and the Leipzig system of manual training, but to my knowledge there has been very little said or written in this country about Herr Aksel Mikkelsen and his work in Copenhagen. His system of manual training, nevertheless, is well worth a careful investigation by all manual-training teachers. A refreshing originality pervades all his work, and, although we may not agree with him in all particulars, we may get a good many valuable suggestions from a careful study of his methods.

A consideration of the social, economic, and educational conditions which have influenced Herr Mikkelsen in the forming of his ideas on manual training might be interesting and instructive in itself. His theories differ decidely from the Swedish and the German interpretations of the methods and even the aims of manual training. Space will not permit, however, more than a brief consideration of a few of the distinguishing features of the Danish sloyd system.

In Denmark manual training was made a discipline in school by the Education Act of 1814. But this law was never put into operation, and manual training is not yet a part of the curriculum of the elementary school; although, supported by private contributions and parliamentary grants, the subject is taught in the schools of a great many towns and country districts. Manual training is likely to be generally taught soon, as there is now an act before the Parliament which is intended to make instruction in this branch obligatory in all schools.

Herr Mikkelsen opened his first manual-training school for children in 1883 in a small country town, in which he was in charge of a technical school. In 1885 he established the first sloyd school in Copenhagen, and the same year sloyd was introduced in a Copenhagen grammar school. About this time the Danish Sloyd Association was founded, with the aim of having sloyd introduced in the public schools, and providing for the training of efficient teachers. This Association has given its hearty support to Herr Mikkelsen's school. He also receives a government grant.

I had the privilege of visiting Herr Mikkelsen's training school in Copenhagen last summer. After reaching the building I had no difficulty

in finding the busy workroom in which eighty teachers, mostly men, were manipulating the saws and planes. There was another room on the second floor in which about fifty others were similarly employed. All of these students were Danish teachers with the exception of a few from Germany. Woodwork is the only branch taught.

Herr Mikkelsen's system of manual training has three distinguishing features: *first*, the great stress laid on the physical development of the pupil; *second*, the "working in time," that is, the practice of having the movements with a tool executed by all the pupils simultaneously upon a word of command; *third*, the grouping of the same exercise involving the use of the same tool.

I know of no manual-training teacher who has spent so much time and effort as Herr Mikkelsen in demonstrating the physical advantages of manual training. In order to attract attention to the great importance of correct positions, Herr Mikkelsen has published a series of diagrams illustrating the normal working positions and the more common habitual abnormal positions. He has also of late published some skeleton diagrams showing even more forcibly the necessity of attending to this phase of the subject. "The object of these normal positions," to quote Herr Mikkelsen's own words, "is in the first place to counteract forcibly the tendency to become round shouldered, so common with school children, and to give the body health, erectness, and beauty. In the second place, it is expected that it may be possible through the working positions assumed in school to affect the positions later in life of the adult at his work, the healthy advantageous positions having become habitual. In other words, this emphasis laid on working positions is an attempt to turn to account the gymnastic possibilities; that is, to make the producing activity of the body a means of developing the body physically."

Two fundamental positions, he says, may be assumed. Position No. 1, especially suitable to all light work executed by means of the arms, as in sawing and whittling, is absolutely symmetric: a firm standing position feet about twelve inches apart, both heels the same distance from the bench, toes pointing obliquely outward (similiar to step stride position in gymnastics), the back straight, the shoulders pulled backward, the head erect and the chest forward. The bend necessary for work is obtained by a regular bending at the hips. Most work is to be done in this inclined position. Position No. 2, used only for heavy sawing and planing, is similiar to our ordinary position in planing. Position No. 1, he says, has every physiological advantage and is preferred whenever it can be

used; position No. 2 is adopted only when, requiring more force, the work necessitates a wider movement of the body.

Another innovation in the same line is "Alternate Work," that is equal exercise of both hands. I call this an innovation not in the sense that it is a new or original idea with Herr Mikkelsen, but I believe he is the only one who systematically applies it. In all heavier work, such as sawing and heavy planing the left hand is used by preference, whereas in the lighter exercises, as in whittling, light planing, finishing, etc., requiring accuracy and control rather than force, the right hand is preferred.

Another application of the physical-culture idea is seen in the method of teaching the different exercises. The first use of the saw, for instance, is directed by the teacher at a word of command for each movement; that is, the teacher will say "one," and all the pupils will push the saws through the wood; at "two" the saws will all be drawn back, etc. Herr Mikkelsen says: "The working in time if used under the direction of an able teacher, has proved an excellent means of uniting the element of an exercise into a rhythmic unity. Working in time is used when practising sawing, planing, chiseling and filing. From a technical point of view the process has stood its test in these exercises, the manipulation of the tool and the work having been greatly improved. The training in good positions is rendered much easier by working in time, the pupils, adults and children alike, value it highly, and it is an excellent means of discipline. The working in time is used within rather restricted limits only while a tool is more or less unfamiliar, and then for a few minutes at a time only."

Another characteristic feature of Danish sloyd is the grouping of the exercises involving the use of the same tool. In Herr Mikkelsen's course of study for children, covering three years, four hours a week, the tools are introduced as follows: *First year:* The first half, exercises with the saw (and no other cutting tool is used during this time); then, for one-half month the knife is taken up, and during the rest of the year the plane is added to the list. *Second year:* First half, planing; then use of spoke-shave and turning-saw. *Third year:* The chisel, file, sandpaper, etc.

Herr Mikkelsen believes in concentrating the attention of the pupils during a considerable period on the use of a single tool. He does not believe that variety of tools is conducive to a greater interest nor to a better training. His series of models that may be made with the saw alone is very interesting. It includes over a hundred different models, such as ladders, flowerstands, footstools, settees, chairs, etc. These

models demonstrate the principles of making these articles, so that the pupils may construct them of a practical size out of school.

Here is a suggestion worthy of our consideration. Our methods are such as to preclude the producing of models with such simple means. Moreover, our elaborate and varied equipment accustoms a boy to depend on a large number of tools, and regard them as indispensible. Where a Danish boy at his home would attack a common piece of kindling wood and construct a variety of articles out of it with the assistance of a saw and hammer and brads, our American boy is usually deprived of these valuable occupations, because he does not think that he has the requisite tools and the right material at his disposal. Herr Mikkelsen introduces, as we notice, new tools at considerable intervals, thus making the pupils familiar with the different uses of each one before any exercises with another tool are attempted. The models are not sandpapered at all during the first and second years.

The significant feature of Herr Mikkelsen's work is, as we have seen, his careful attention to the physical development of his pupils by means of correct working positions. His diagrams on that subject, compiled with the assistance of medical experts, are the most complete ever published. This suggests one of the insufficiencies of our own manual-training schools, and American students would do well to investigate his practices. His whole system has been influenced by this idea, and his methods adapted to realize this end. He has undoubtedly carried this point to what appears to us as an extreme, but it furnishes for this very reason, perhaps, a very interesting and suggestive field of study.

MANUAL TRAINING IN CANADA.

ALBERT H. LEAKE,
Inspector of Technical Education, Ontario.

WITHIN the past ten years many changes have come over the educational outlook, but the greatest of all has been the trend towards the practical. The old and time-honored idea that education consists of the mere gathering of facts, the massing of knowledge, is dying; the more rational view that the school should touch life at as many points as possible — that school life should be a type in miniature of that larger and fuller life to be lived by the adult — is beginning to be believed. The recognition of this re-discovered purpose of all educational effort gave birth to the manual-training movement in Canada. The honor of bringing these ideas within the region of practical experience belongs to Dr. Robertson, Dominion Commissioner of Agriculture. It is a strange and suggestive coincidence that the man who has done most for manual training in Sweden, and perhaps in the world, and the man who has made it a possibility in Canada should both have received their preliminary training in the direction of agriculture. There may be something in the study of nature and her problems, which leads to a broader and more comprehensive outlook on the affairs of practical life, and gives the capacity to see more clearly the vital needs of humanity.

During Dr. Robertson's frequent visits to England and the United States, he noticed the prevailing trend, saw manual training in operation, and returned convinced of the good results that would accrue to the children of Canada, if the subject and its methods were introduced.

In his work, for the improvement of agriculture, he had learned that the best way to introduce any reform was to show the proposed changes in practical operation; he never made a speech without being prepared with a plan by which he could show the feasibility of the course he was advocating. As a first step he determined to set aside a portion of his income each year towards the establishing and maintenance of a manual-training school in Ottawa, and hoped, by persuading several of his friends to follow the same course, to show the people of that city and the members of the Legislature what manual training was, and what it was capable of doing. Seeking friends to aid him, he approached Sir William

Macdonald, and so eloquently and forcibly did he present his case that Sir William at once agreed to give a sum sufficient to equip and maintain one such school in every province for a period of three years. The name under which the movement was inaugurated was the "Macdonald

CREIGHTON STREET CENTER, OTTAWA.

Sloyd-School Fund," the Doctor being of the opinion that sloyd as set forth at Nääs offered the most rational basis on which to found a system to fit the conditions in Canada.[1]

The term "sloyd" for some reason or other, perhaps its foreign appearance, failed to become popular. The new subject was constantly referred to as manual training, and it was decided to change the name while keeping to the original conception of the form that the work should take. Such was the comparatively modest plan at the commencement of the movement, but it was soon found that the demand for schools of this kind was so great that considerable enlargement of the plan became

[1]The word system as applied to this subject has become of ill repute, and is only used because for the present no better can be found. Many of the so-called systems have so much "system" that there is little room left for manual training.

necessary. There are now over forty centers in the Dominion, the equipment and maintenance of which were originally supplied entirely from this fund.

Sir William Macdonald is best known to the outside world as a manufacturer of tobacco; to a few he is known on account of his princely gifts to McGill University, Montreal. For over forty years he has been a resident of Montreal, and has given largely of his time, thought and wealth to the advancement of education in Canada, and his gifts have always been bestowed with the greatest judgment.

When the manual-training work was started under the MacDonald fund, teachers capable of introducing the new subject were not to be found within the limits of Canada: they were necessarily brought from abroad, the expenses in every case being borne by the fund. A director was appointed for each province, and he was held responsible for the general organization and the course of work within his territory. I am thankful to say that up to the present time we have not imported the battle of the "systems." We are prepared to recognize that every system has been devised with one end in view — the greatest educational good to the child — and when all have the same goal it seems to be the greatest folly to fight over the road by which we travel to reach it. The points on which we agree are immeasurably greater, and of more importance than those on which we differ; the former should be accentuated and not the latter.

The "center system" is the one that has been generally adopted, though it always has had many disadvantages. In some of the larger towns it is coming to be recognized that the best way of carrying on the work is by establishing a room for manual training in connection with each school. Whether the time will ever come when the grade teacher will be competent to teach manual training with his other subjects is difficult to say, but in my opinion it is a consummation devoutly to be wished.

In the vast majority of cases the centers are almost ideal in character, and in one or two instances where rather unsuitable rooms were the only ones available, no expense was spared to make them efficient. In many places outside of Canada but little attention is paid to the general appearance of the manual-training room, and the typical room has been as unlovely and barn-like a place as it could be made. Here we have proceeded on somewhat different lines. We believe, and believe strongly, that the influence of the place in which a boy works leaves its impress on both the character of the boy and the quality of his work, and in con-

formity with this idea we have sought to make our rooms bright and attractive, devoting special attention to their decoration, though everything that has not a direct bearing on the work has been rigidly excluded. Specimens of timber, sections of trees, examples of work, and photographs have been liberally supplied. The actual course of models being taken is displayed by means of large drawings around the room These are very effectively and economically prepared with white chalk on ordinary wall-paper. Every kind of tool in use has been taken apart, and the separated parts mounted and properly named. It is surprising what an effect illustrations of this kind have in stimulating a healthy curiosity in the minds of the boys.

Soon after the work was started it was felt that a great hindrance to its future development was the dearth of teachers, and steps were taken to supply this deficiency. It was decided to establish training schools in two provinces in order to equip Canadian teachers. The educational authorities offered every inducement to teachers to take a course lasting for a period of six months, those in Ontario being offered a bonus of $120.00, with tuition and materials free of cost. Our experience has forced us to the conclusion that six months is not sufficient even though, as is the case, only qualified teachers are taken. Manual training, on its introduction, at any rate, stands or falls according to the character of its representatives. Realizing this, every applicant was interviewed before a final selection was made. By this means a number of good men were obtained, several of them being university graduates. Summer courses, also, have been held in most of the provinces. In these special attention has been paid to acquiring information about trees at first hand, lectures by experts having been delivered in the woods. Every chief center in the Dominion is provided with a small but comprehensive library, consisting of about fifty books, dealing with the subject from all points of view.

Besides the work of organization in the various provinces, it has been part of the duty of each superintendent to stimulate public interest by attending conventions of teachers, and addressing various school boards seeking information on the subject. The demand for services in this connection has been very great. Much pioneer work has been done, too, by the publication of pamphlets, and the press has been of the greatest assistance.

Manual training and household science have been put into every normal school in the Dominion, so the time is not far distant when every teacher trained in such schools will have as part of his or her regular

equipment the ability to intelligently conduct classes in these subjects.

The schools have been fitted in the best possible manner, efficiency being the only consideration. The centers are equipped for twenty or forty pupils (two teachers), though one large center was fitted for sixty. This was rendered necessary in Ottawa, owing to the large teachers' classes that had to be handled, but it is an experiment that will not be repeated.

SHARPENING OUTFIT.

Before the inauguration of the manual-training schools proper, Sir William Macdonald had given $10,000 to provide prizes for boys and girls in a seed-grain competition carried on in accordance with the recommendations of the royal commission. The progressive-agriculture branch of the fund has great possibilities of usefulness before it. Over 2,000 boys and girls have entered the competition, and there is no saying to what heights its educational influence may grow.

The work under the fund is not the only manual training that is carried on in the Dominion. Many educational authorities, inspired by the success of these schools, have established this form of instruction on their own account, and in a number of instances have erected buildings in which manual training and household science are being carried on under the same roof. In these cases liberal aid is given by the provincial governments. The object for which these schools were established has been accomplished, and every town in which they are located will take them over and carry on the work at public expense as part of the general educational system.

The next efforts of the fund will be directed towards the improvement of education in the rural schools. The plan proposed is a comprehensive one and may conveniently be divided into four parts as follows:

First. To give object-lessons of improvements in education through the consolidation of five, six, or more rural schools into one central graded school, with a school garden and manual-training and household-science rooms as part of its equipment. It is proposed to offer financial assistance to one locality in each province.

Second. To show the value of school gardens and nature studies in individual rural schools as part of a general education. This will be commenced by means of a traveling instructor, who will spend a half-day a week with the children and teacher at each school of a group for a term of three years, or until a considerable number of suitably trained and qualified teachers are available to carry on such work themselves in rural schools. One group of ten, or fewer, schools in each province will be aided in this way.

Third. To assist in providing short courses of instruction for teachers of rural schools who desire to qualify themselves in these newer subjects and methods of education. A large building has been presented to the province of Ontario at the Agricultural College at Guelph for this purpose.

Fourth. To assist in providing courses of instruction and training in household science for young women from country homes, in order that they may have opportunities for acquiring practical and advanced education not less suitable to them than the present courses at the Ontario Agricultural College are beneficial to young men. In carrying out this, a hall of residence will be erected to accommodate not less than one hundred teacher-students.

Such are the plans and projects of the Macdonald Manual Training Fund, under the direction of Dr. Robertson. Only the barest outline of them has been possible within the limits of this short article, and I shall not attempt to say to whom the greater honor belongs — to the man who by his ability to plan, power to overcome obstacles, and energy to direct, or to the man who by his generosity and wisdom in spending his wealth makes it possible to bring those plans within the realms of the practical.

THE NEW BUILDING OF THE CHICAGO MANUAL TRAINING SCHOOL

JAMES GAMBLE ROGERS

Many readers of this Magazine will be glad to learn that the Chicago Manual Training School has moved into a building which contains a series of shops and drawing rooms unsurpassed by any school of secondary grade in America. Below we present a brief descriptive article by the architect of the building. We are especially glad to present his statement because the architect has given unusual consideration to the school side of the problem before him.

For the benefit of any of our readers who may not know the history of this school we give the following outline:

The Chicago Manual Training School was founded by the Commercial Club of Chicago. Its history may be said to date from the regular monthly meeting of the Club held March 23, 1882, when the necessary funds were subscribed and a committee appointed to propose a plan of organization. As the result of the work of this committee the Chicago Manual Training School Association, composed exclusively of members of the Commercial Club, was incorporated under the laws of the State of Illinois, April 19, 1883, and the control of the school was vested in a board of trustees elected by the Association. The lot on Michigan Avenue on which the original

building stands was purchased March 28, 1883; the corner-stone was laid September 24, 1883, and the regular school exercises began February 4, 1884. The first class was graduated June 24, 1886. This school was the first independent manual training school in the United States, the St. Louis school having been established in connection with Washington University.

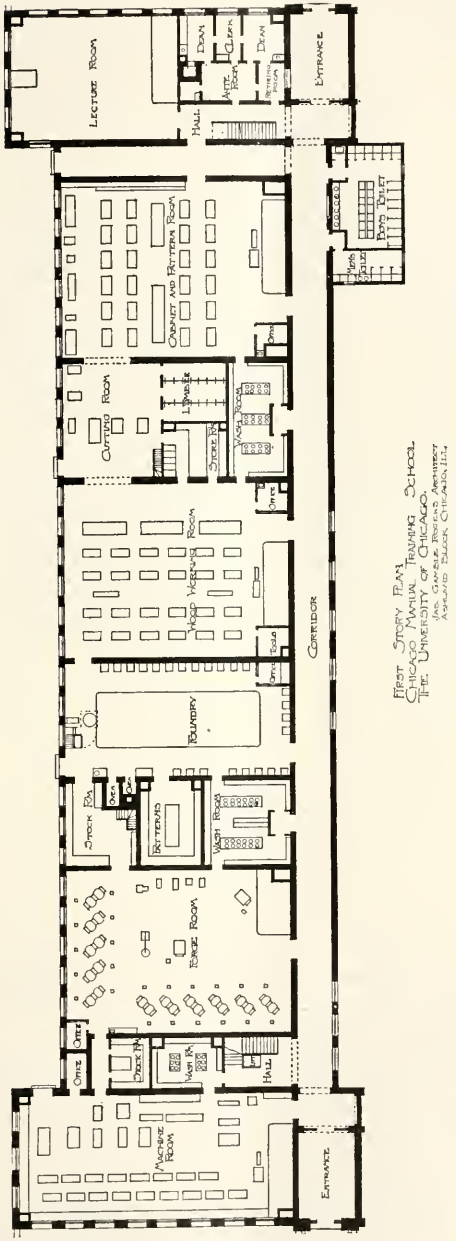
Through twenty years the Chicago School has made an enviable record under the directorship of Dr. H. H. Belfield. The breadth and high educational standing of manual-training high schools generally throughout the United States today is due in a very large degree to the wise precedents established during the pioneer years by Dr. Belfield, whose classical training and experience as a public high-school principal prevented him from allowing the new school to become a mere trade school. This school has demonstrated over and over again that a manual-training high school may be a strong college preparatory school as well as a superior training school for a life of usefulness.

On May 25, 1897. the Chicago Manual Training School became a part of the University of Chicago, and in the spring of 1901 when the Chicago Institute became the School of Education, the University announced the intention of removing the Manual Training School to the grounds of the University. The corner-stone of its new building was laid June 17, 1903. The school has now been combined with the South Side Academy forming The University High School of The School of Education and Dr. Belfield is the senior dean of the combined school.—EDITOR.

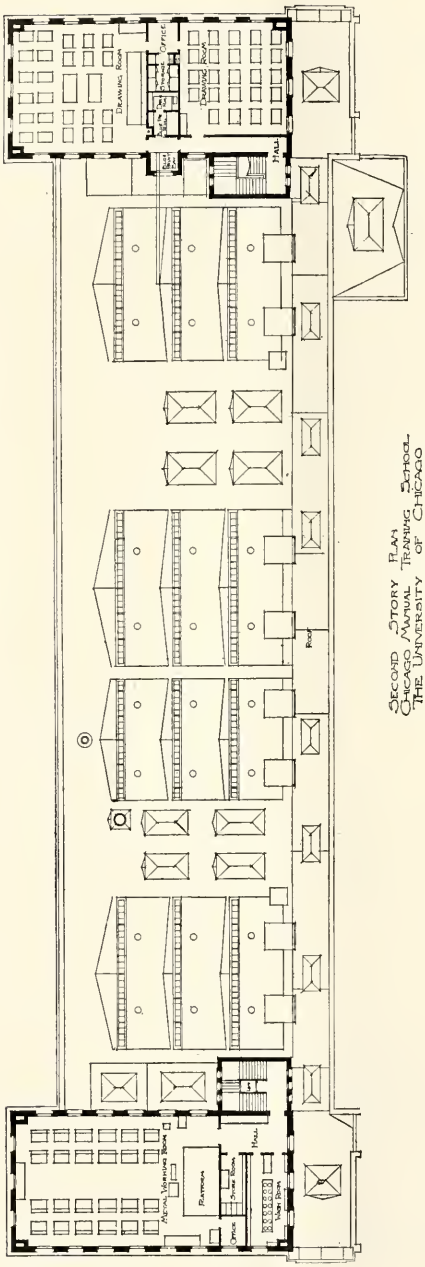
IN DETERMINING the plan which should be adopted for the Chicago Manual Training School, it was necessary to consider not only the needs of this one school, but also its relation and co-ordination with the other buildings of the group being constrmcted for the several schools, which, taken together, are called the School of Education. It was necessary to enter into such considerations as direct and easy access from one to the other, the amount of ground area to be given to each department, and the grouping of the buildings so as to form a harmonious combination.

Communication from one department to another should be simple and easily understood at a glance, for one entering the building for the first time has not memory to guide him with reference to what is not within the range of vision. This means simple and straight lines in a plan. It also means broad and light corridors, for classes are dismissed usually at the same time, and the corridors and stairs become at once occupied by the students. For these reasons the halls of the Manual Training School were made wide and were lined up with those of the other buildings of the School of Education.

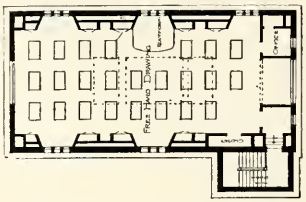
The position of the manual-training school at the north end of the grounds devoted to this group of buildings was necessitated on the one hand by the Assembly Hall and Gymnasium, which it was necessary

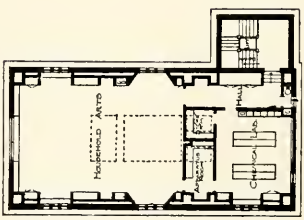


First Story Plan
Chicago Manual Training School
The University of Chicago
Architects
Adams & Prindeville
Associated Architects
Chicago, Ill.



Second Story Plan
Chicago Manual Training School
The University of Chicago
Jas. Gamble Rogers, Architect
Ashland Block, Chicago, Ill.





Third Story Plan
Chicago Manual Training School
The University of Chicago
Jas. Gamble Rogers, Architect
Ashland Block, Chicago, Ill.

to locate centrally, and on the other hand by the fact that in this way the noise from the shops would be less evident in the class rooms of the Secondary School which is to stand between the present buildings on the Midway and the Manual Training School.

Several schemes for arranging the shops were considered. The system of stacking them one over the other in pairs, seemed at first to offer

PATTERN SHOP, SHOWING DISTRIBUTION OF LIGHT FROM SAW-TOOTH ROOF.

many advantages. In this arrangement the forge and foundry were on the ground floor, metalwork and machine shops on the second, and woodworking and pattern shops on the third, while drawing and domestic science were placed in a different building in order to avoid the vibration from the machinery.

The faults of this scheme were, first, that although it was easy to pass from the pattern to the woodworking shop, it was difficult to reach the foundry, and intercommunication between most of the shops was not easy. Secondly, in order to receive from wall windows enough light for the students to work comfortably at a bench or forge near the middle of the shop, it was necessary to diminish the width between outside walls, making a very narrow and undesirable form for the room. Thirdly, the supports in the lower floors would necessarily be a hindrance in the shops.

For these reasons and because of the advantages offered by the saw-tooth system of sky-lights, the one-story system was adopted. These skylights have been very popular in France for many years, some of the

old factories having been constructed in this way. They are made with the north slope steeper than the angle made by the sun's rays with the ground in the summer, and the south slope non-transparent. In this way the light falling on the benches below them is the much-desired north light. The windows in the walls at the north, in giving a view of the trees and ground, make a more cheerful room than would be the case if surrounded by four blank walls — the objection usually raised against sky-light lighting.

The first objection to the stack system was easily solved by adopting the one-story scheme, as with it it is possible to truck on the same level from one shop to another, either directly or along the wide corridor. The third objection to the stack system, namely that of the numerous columns necessary, was obviated, there being no heavy loads to carry on the girders.

I have thus far spoken only of the general arrangement. Besides this, are to be noticed the smaller rooms adjoining the shops and meeting their various needs.

On the ground floor beginning with the west wing, is the machine shop, with separate washroom accommodations, store and tool room and office. Next to this and communicating with it is the forge room. Each forge is provided with down-draft connection, which conducts the gases by means of flues under the floor to the chimney, which carries them high enough to prevent their entering at upper windows. Adjoining the forge room are the stock room, office and washrooms. Then follow in succession the foundry, woodworking room and pattern shop with their dependencies. A pattern storage room opens into the foundry. Between the woodworking room and pattern shop, and opening into each with wide openings, is the cutting room and lumber storage space.

The east wing contains no machinery. On the ground floor is a large lecture room for the accommodation of the Manual Training School students. Adjoining this are the offices of administration with rest room. In this same wing on the second and third floors are the mechanical and freehand drawing rooms. The absence of machinery in this part insures them from vibration.

In the second story of the west wing is the metalworking room and above this is the temporary quarters of the domestic science department.

The wide corridor running east and west into which the shops open, is lined with buff brick, and, being well lighted from above, is intended to contain cases for exhibiting the work of the students.

The walls of shops are lined to a height of seven feet with brown

enameled brick and above with a smooth yellow brick, forming a good surface for diffusing the light.

The basement under the forge room, foundry and pattern shop, is not excavated. Heavy walls and piers carry the floors and form foundations for the equipment above where necessary. The basement contains stock rooms, coke and coal storage convenient to a lift to the floor of the foundry, ashes depository for forge room, fan room, shavings depository for the woodworking room, receiving room for lumber, and lumber storage space. The remainder of the basement is devoted to heating apparatus and store rooms.

Outside of the building is an underground oil room, connecting with lift under foundry.

The buildings are fire proof and of substantial construction. The architecture is simple and corresponds with the architecture of the rest of the group of which this forms a part.

EDITORIAL.

Is There To Be An Industrio-Technical Associatoin?

Those who follow the development of the arts, can scarcely fail to be struck by the changes which are taking place in the aims and scope of the various professional organizations which represent them. The Western Drawing Teachers' Association has become the Drawing and Manual Training Association, while the Eastern Art Teachers' Association, at its recent meeting in Baltimore, exhibited much work in construction and applied design.

Such actions are as straws indicating the direction and force of the wind which is now setting steadily toward a union of the interests of drawing and manual training. The manual arts, as such, are coming to be recognized in the elementary curriculum as developmental subjects — essentials, not specialties. Above the elementary school we see their differentiation and specialization in industrial and technical courses.

Which of these two interests — elementary or advanced — the existing manual training associations will elect to represent, they must in the not far distant future decide.

The line of clevage in programs and in membership is already marked. The elementary-school people have their problems, and the technical and industrial-school people theirs, but the two sets of problems differ in essence, and it is scarcely to be expected that teachers of one class can have more than an academic interest in the proceedings of those in the other.

It might, indeed, be urged that a division of the manual-training associations into elementary and advanced sections might solve the difficulty. In all probability such a division would serve, were it not for the fact that owing to the close relations of construction and design in elementary teaching, the associations which represent the arts in the elementary schools can scarce but come to include the very workers who would otherwise form the elementary sections of the manual-training societies.

Under the circumstances it might seem wise if the manual-training associations were to confine their work to technical and industrial questions. They would then have a field to themselves. Technical education in this country is bound to develop mightly, and as yet, industrial

training is in its infancy. The near future must see a great development of both of these subjects. Such growth associations of the nature indicated could do much to promote. That they would profit by the concentration of their activities and by the focusing of their interests there is good ground to believe. The future will demand a more intensive study of all phases of industrio-technical education. There is no more important service which any association can do than to organize and direct this study and present its results in definite and permanent form. —*H.*

It is possible to dissolve the Arts in the elementary course of study — to relate them so that they appear nowhere as special subjects, but in a dozen places as essential elements. The more skilful the teacher, the more perfect the solution.

Constructive Design

What progress is being made in constructive design in manual-training high schools? In the writer's opinion the importance of this matter cannot be overestimated. Most manual-training school teachers, however, while admitting the high educational value of design in the abstract, do not think it practicable to give much attention to it. Some say it is too difficult for boys of the high-school age; others claim that a systematic effort to introduce constructive design into a general course would require a disproportionate amount of time; and still others base objections on the assumption that, if design is taught at all, it must be taught, in most schools, by teachers of drawing who know scarcely more than their pupils about the principles of construction.

There would be some weight in these objections if by constructive design as applied to manual-training high-school work were meant a thorough and systematic application of this principal to all or even the larger part of the mechanical work in such schools. No teacher of any practical experience would contend for such an impossible scheme. It is recognized that much of the work of every department must be practice work upon exercises devised by the teacher to give instruction in the principles involved in the work of that department. It would be practically impossible either to have the pupil design all or even a large part of his own work or to require him to design much of the work to be done by other pupils. But is this fact, self-evident though it may be, any justification for the contention of many manual-training teachers that

there is no place in the manual-training school for any work in constructive design on the part of the pupil?

Many of the difficulties of the case disappear when the idea of teaching design through the pupil's original effort is considered by itself, as a matter of paramount importance, and limited to one or to a few simple and unique exercises, set apart for this purpose. The aim should be not to cultivate facility in design, but to develop fundamental ideas of the relations existing between work at the drawing table and work at the bench, the forge or lathe; to awaken the sense of proportion and balance; to suggest the fitness of form, size, weight and material to the requirements of the case in hand; and to impress the necessity of scrupulous attention to details in making the final or working drawings. If manual training in general means more than mere mechanical practice — if there is any value in encouraging thought about any exercise with a view to discovering reasons for the processes involved and thus unfolding to the pupil's mind the design of the one who planned the exercise — there is certainly still greater value for the pupil in thinking out a practical problem or plan of his own, i. e., in original design.

It is natural for most boys, in their earlier conceptions, to aim much higher than either their constructive ability or the time at their disposal will warrant. This probably explains the failure of many attempts to teach constructive design. In order to insure success it is necessary to suggest designs of extreme simplicity and to insist upon their being properly worked out. In giving this work its proper place in the manual-training course, wise and conservative direction is needed. There is danger of striving for the impossible both in kind and in amount. The regular course of practical instruction must not be interfered with. A proper guarding of this point often results in setting apart the work in design for the brighter boys of the school. But this is not surrendering the main proposition, that there should be consistent effort made in every complete manual-training course to bind together the work of the drawing room and the shop, and all other departments which have any correlation, by designing and planning a reasonable number of constructive exercises.. —*W.*

The first business of the art teacher is not to teach art, nor is it the first business of the shop teacher to teach shopwork; art teachers and shopmen exist to teach children. It is well to remember this.

The Second International Drawing Congress

The second "International Congress for the Development of the teaching of Drawing" is to be held at Berne, Switzerland, during the first week in August, 1904. A program of breadth and range is contemplated. There is to be a general and an educational division. The general division is "to examine the results, in different countries, of the resolutions adopted by the preceding Congress, and to study the ways and means of assuring the existence of the permanent international committee." The educational division is, in its general section, to study the social value of drawing and methods of drawing instruction, while in its special section it will examine drawing in its professional, technical and artistic aspects.

This Congress, in its general aspects, is only a small part of a large movement which, the world over, is making for the union of similar interests. Various of the professions have long since felt the necessity of international association, but it has remained for teachers of drawing to feel this need and to take steps to meet it. Upon the depth of this feeling the future success of the international association must depend. Three or four general societies of drawing teachers already exist in this country. With an international association as a stimulus these societies may be in a position to raise their standards of professional work. The Congress certainly should aid in making clear the points of view of drawing teachers from different countries; it should enlarge these views and should create a mutual interest and sympathy among the teachers who hold them. It should cause professional problems to be studied — intelligently studied — and should put results into accessible form that they might be of service to the profession at large.

That a congress of this description can have but a moderate growth in its early years must stand to reason. The diversities of language, marked in all international gatherings, will in the case of the coming meeting be emphasized. Few drawing teachers are polyglots, and the effort to catch a new point of view in an unfamiliar tongue will try the patience of many listeners. Unfortunate, also, will be found the fact that few members can come to the congress prepared by training to study in scientific fashion the problems there presented. Drawing schools and studios do not produce the scientific attitude. The congress, therefore, if it is to make its transactions of value, must be under the burden of training its members, as well as gathering them together and reporting them. Whether this can be successfully done remains to be seen. Certainly everyone interested in the development of drawing

as an essential element in education should welcome and support the movement.

The first meeting of the Congress was held in Paris during the exposition of 1900. It is to be regretted that the second could not have been held this year at St. Louis. If the signs of activity in various quarters offer any reasonable criteria as to the extent of the educational features of the coming exposition, the drawing congress would have found much suggestive material in the cosmopolitan showing there to be made. For the great majority of drawing teachers in the United States the center of interest this year will be found in the great fair, and the work and study of the large but inorganized drawing congress which will gather on the banks of the Mississippi will not be less important or far-reaching than that of the body which is to meet in the republic of the Alps.. —*H.*

Light and crime may go together. Some of the darkest deeds done in the name of art have been perpetrated with a glowing pyrographic point.

Milwaukee Meeting Every teacher of the manual arts within reasonable distance ought to attend the Milwaukee meeting of the Western Drawing Teachers' Association. Last year the Association voted to change its name so as to include manual training and this year a new constitution will be presented for adoption. It is believed that under this new constitution the Association will be the greatest single force in the West for the unification of manual training and art education and will be stronger and more influential, even, than it has been in the past. The invitation of the drawing teachers is most cordial and we believe the teachers of manual training will respond with heartiness. The time is surely ripe for such an organization as is contemplated. The executive committee has in preparation a most attractive program, a preliminary draft of which we print in another column. —*B.*

Culture means many points of view.

N. E. A. The president of the manual-training department of the National Educational Association is making the best of a rare opportunity by planning to use the educational exhibits of the Louisiana Pur-

chase Exposition as the basis for a large part of his program, and by inviting the leading representatives of foreign countries to take part in that program. Already he has announced that Dr. Alwin Pabst, of Leipsic, the noted German leader, will speak at the first session. Other distinguished foreigners will probably be announced soon. Our department president is evidently following the timely advice of President Eliot in his report of the Boston meeting when he said that "every writer should be urged to deal with actual experience, difficulties encountered, and results achieved, rather than with theories or generalities. * * * Interest in the meetings can best be assured by procuring the active participation on the program of teachers who have a wide reputation, or who have obtained in their own fields unusual results. A few papers on educational theory are desirable; but these should make but a small part of the total program of a convention."—*B.*

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No small interest attaches to the plan of the Council of Supervisors of each year putting into printed form the results of studies made by its members. A procedure common enough among many other professional bodies, it has remained to be proven that an association of supervisors of the arts could carry through to successful issue the publication of a year book involving an annual expenditure of some hundreds of dollars. That this has been successfully done is a cause for congratulation. The council, now in its fourth year, would appear to be firmly upon its feet. Its book is a dignified publication, the articles of which represent not mere lucubrations of persons playing at authorship, but the serious studies of earnest teachers working for the good of the craft. As an organization which does something, the council has valid claims to consideration. It stands for deeper professional study and for more searching professional criticism. It is an organization striving to raise still higher professional standards.

ASSOCIATIONS

THE ILLINOIS MANUAL ARTS ASSOCIATION.

A notable event in the history of manual training in Illinois occurred at Bradley Polytechnic Institute, Peoria, on Friday and Saturday, February 19–20, when a permanent organization of the manual-training workers of the state was effected. After consultation with the leading men in various parts of the state the invitation to a "Conference on Manual Training" was sent out by Bradley Institute. The general plan of the conference included: inspection of the shops and studios of the Institute, which were open to visitors all day on Friday; in the evening a dinner, followed by addresses and discussion of plans; on Saturday morning a session for business and organization, followed by a brief program with discussions.

The opportunity to visit such a school as Bradley Institute was embraced by a goodly number of the visiting teachers, and Mr. Bennett and his corps of assistants were kept busy most of the first day showing them through the buildings. In each section of the department of manual arts was a representative display of work that was at once instructive and full of new suggestions.

At six o'clock Friday evening the guests began to assemble on the third floor of the main building where they were received by Dr. Burgess, acting director of Bradley Institute, and Professor Bennett, head of the department of manual arts, and an hour was spent in exchanging ideas and extending acquaintance. Shortly before seven the doors of the dining room were thrown open and the members of the conference, thirty-two in number, were seated about a large table which was arranged in the form of an open square. Souvenir menu cards were provided by the drawing department, while an elegant dinner was served by the young ladies of the department of domestic economy, who demonstrated beyond a peradventure the thoroughly practical and efficient manner in which this department is conducted.

After the banquet Dr. Burgess, before introducing the speakers of the evening, extended to the visiting teachers and supervisors of manual training a most cordial welcome on behalf of Bradley Institute, and expressed his confidence that this event was to be the starting point of a movement of much significance to education in Illinois.

Oliver J. Bailey, president of the board of trustees of Bradley Institute, and Newton C. Dougherty, superintendent of the Peoria public schools, made brief addresses welcoming the convention to the Institute and to the city, and predicting great things as the outcome of the projected deliberations.

ADDRESS BY WILLIAM HAWLEY SMITH.

The principal address of the evening was delivered by William Hawley Smith, who responded to the toast: "Manual Training." On account of ill health Mr Smith has had to cancel all lecture engagements this season, but his personal interest in manual training induced him to accept the invitation to the conference, a sacrifice much appreciated by all who were fortunate enough to hear him. He said in part:

"I have always taken a special interest in manual training and in my travels up and down the country I have taken pains to investigate what is being done. I have settled in my own mind that the one fundamental thing that must forever obtain in education is that every move, every act, must ultimate in the formation of character. If it does not lead to this end, it is not worth while.

"What do I mean by character? If the fundamental principal in a man's life is regard for truth—regard for God's law—that is character. Now, it seems to me that manual training has in it more of the essential thing that among the masses of the people is to develop character than is generally realized. You young men especially have before you a grand future in the development of this new education.

"Why was it we whipped Spain so easily in the late war? They had better ships than we, better guns and better paraphernalia in many ways; but when it came to shooting—to *doing things*—they could't do it and our folks could, and that's what made the difference.

"You manual training people have got some hard things to go up against; it may be worth while just to touch on some of them. The first problem is to find the man; how are you going to make good men? The supply of competent teachers is not sufficient to meet the rapidly growing demand, which is for men who are strong on both the practical and theoretical sides.

"In the second place, the equipment of a school like this, a source of strength, is also a source of danger. A student prepares himself for work here surrounded by all this magnificent equipment; then you send him out to Chenoa or some other small place where he starts in with the idea that he needs the whole outfit. Somebody has said: 'Any fool can use tools, but it takes genius to do things without conveniences.' It will be worth your while to look up the fine work Superintendent Stableton is doing down there at Bloomington this winter with the minimum of expense and equipment.

"In the third place, it is a mistake to say that all boys should take manual training. There are boys who have no business to take manual training to amount to anything at all. We talk about the educational values of the different studies; but the fundamental thing, as I see it, is to study the child and find out what is in him.

"There is a great temptation to crowd things along too fast; in undertaking a great many things we don't do anything well enough.

"Another thing that needs your attention is the development of the idea of the dignity of labor. You will find here prejudice to overcome; there are people who want to get a living without working. We say with Walt Whitman: 'Ah! little thinks the laborer how close his work is holding him to God.' Labor is a noble thing."

Mr. Smith was listened to with close attention and as he finished his address was greeted with continued applause. A quartet consisting of Messrs. Dille, Hiatt, Beecher and Anderson, principals of Peoria schools, presented several selections during the evening which were heartily received.

PLAN OF ORGANIZATION DISCUSSED.

The evening closed with a discussion of the questions incident to the formation of a state organization. Dr. Burgess introduced Mr. Bennett who took charge of this discussion. In a few words Mr. Bennett related the story of the growth of the idea of which this conference was the fruition. One of the things that brought matters to a head just at this time was the coming into the state of a number of new men to

whom, as one of the older workers, the speaker wished to extend a cordial welcome. Mr. Bennett then called upon a number of those present for expression of opinion and suggestions. Presson W. Thomson, director of manual training, Peoria High School, was introduced as one of the leaders in the present movement and the one directly responsible for the suggestion of a state organization. After outlining briefly the advantages of the proposed plan Mr. Thomson made a motion that the conference proceed to effect a permanent organization and that the chair appoint a committee on constitution and a committee on nominations to report on Saturday morning, Mr. Bennett to be the chairman of the nominating committee. This motion was later seconded by Mr. G. H. Bridge, Galesburg Public Schools.

Continuing the discussion, the following men were introduced and spoke, all favoring organization: L. A. Hatch, DeKalb Normal School; I. S. Griffith, Oak Park; C. H. Bailey, James Millikin University, Decatur; L. R. Abbott, Moline; A. H. Hiatt, Peoria Public Schools; Professor Frank Forrest Frederick, University of Illinois, Champaign; A. C. Bloodgood, Aurora; H. G. Hatch, Rockford; E. H. Sheldon, Evanston; C. W. Kent, Rock Island; A. P. Laughlin, LaGrange; W. T. Bawden, Normal.

Fred. D. Crawshaw, Peoria Public Schools, as temporary secretary, read extracts from letters sent to the meeting by the following persons who were unable to be present: Dr. H. H. Belfield, dean of University High School, Chicago; A. R. Robinson, Crane Manual Training High School, Chicago; P. M. Chamberlain, Lewis Institute, Chicago; Henry S. Tibbitts, principal John Spry School, Chicago; Superintendent O. J. Milliken, Jewish Manual Training School, Chicago; Ila M. Carley, Francis Parker School, Chicago; Grant Beebe, Chicago High School; Douglas Donaldson, Joliet High School; George W. Webber, Quincy High School.

Robert M. Smith, Chicago Public Schools, and Oscar L. McMurry, Chicago Normal School, were unable to attend the banquet, but arrived in time for the Saturday morning session.

The whole question of organization was fully discussed and various plans considered, everything indicating that the time was ripe for action. Chief among the features demanded were: an independent state organization designed for conference, mutual assistance and professional advancement; and membership open to educators directly interested in manual training and the applied arts.

Mr. Thomson's motion was then put and carried unanimously and the committees named by the chair as follows: On constitution—Thomson, Peoria, chairman; Bailey, Decatur; Hatch, DeKalb; Kent, Rock Island; Laughlin, LaGrange. On nominations—Bennett, Peoria, chairman; Sheldon, Evanston; Anderson, Peoria.

The quartet led the singing of "Illinois" and the conference adjourned at 11:00 P. M.

At 9:40 o'clock Saturday morning the conference was called to order in the assembly room of Bradley Institute with Mr. Thomson in the chair. After discussion and amendment the report of the committee on constitution was adopted. The provisions of the constitution relating to the purpose of the association and membership may be of general interest.

"The purpose of the organization shall be the advancement of manual arts in public education, and the cultivation of professional spirit among its members."

"The association shall consist of those who sign the constitution as charter members, and such others as shall be elected to membership on nomination of the

executive committee. Candidates for membership shall be elected by ballot at the annual meeting of the association. Negative votes amounting to one-fourth of those cast shall reject a candidate, but any person so rejected may be proposed again after the lapse of one year. Candidates must apply in writing to the secretary, and are voted upon after being favorably reported by the executive committee."

The report of the nominating committee was amended and the following officers elected for the ensuing year: President, Charles A. Bennett, Peoria; vice-president, Ira S. Griffith, director of manual training, Oak Park; secretary-treasurer, William T. Bawden, director of manual training, State Normal University, Normal.

At the morning session two educational topics were considered. Oscar L. McMurray, Chicago Normal School, addressed the conference on

SOME PROBLEMS OF ELEMENTARY MANUAL TRAINING.

The speaker confined his attention more especially to the problem of the relation of the grade teachers to manual training. "Handwork is now making its way into the grades. The grade teacher is the controlling influence in the education of the child during the formative period from the first to the eighth grades. Our work for the next few years must be largely with the grade teachers; in fact, the work of the director should be divided between the children and the teachers. We started in Chicago a line of constructive work for the city teachers, taking up problems in cardboard, bent iron and clay. We have found a shortage of teachers to carry on this work. Poor work comes largely from inability to clearly image ideas; most of these teachers are weak in making sketches. Manual-training teachers who are primarily interested in high-school work can help in this field by working with the teachers in the grades. The influence of such work would be felt when the children get up to the high school, so that it would be well worth while even from the point of view of the high-school teacher's own work."

Discussion of this topic was opened by Mr. Bawden, Normal, who called attention to the fact that as a general thing grade teachers are willing and anxious to take hold of the work and make something out of it. By encouraging this interest and providing the necessary assistance and feasible suggestions the influence of manual training may be multiplied by as many times as the grade teachers outnumber the special teachers. Furthermore, it is not difficult for the grade teacher to master the processes that it is desired to employ.

G. H. Bridge, director of manual training, Galesburg High School, read an interesting paper on "Manual Training in the High School." The paper dealt chiefly with the introduction and growth of manual training in Galesburg. The superintendent and principal of the high school were quoted to the effect that manual training has done more than anything else to increase high school attendance. Greater interest on the part of pupils in their school work, longer continuance in school, increase in proportion of those going on to higher education, increase in public and especially parental interest in school affairs, were declared to be results directly attributable to manual training.

In opening the discussion of this paper Charles H. Bailey, Millikin University, suggested that we must not lose sight of the content value of manual training work. Education by the state must lead to efficient citizenship; to be a good citizen one must be self-supporting. This idea has been neglected in our schemes of education which do not prepare our children to make a rational choice of life work nor

provide a fund of information that would be of value in the pursuit of the chosen line.

Both the address and the paper were followed by animated discussion indicative of a lively interest in the questions under consideration. In each case the discussions were closed by the chair with members on the floor. After transaction of necessary business the association adjourned at 12:55 P. M.

Altogether it was a most satisfactory meeting and, we believe, one that surely means much for the future of manual training in Illinois.

Besides those already named, the following teachers and supervisors of manual training attended the conference and participated in its deliberations, W. H. Varnum, director of fine art, James Millikin University, Decatur; L. H. Burch, Macomb State Normal; A. G. Pippitt, Abingdon; W. C. Vail, LaSalle; L. I. Brower, Elgin; J. C. Scullin, Peoria; C. S. VanDeuzen, W. F. Raymond, C. C. Jett, E. V. Lawrence, Bradley Institute.

STATE NORMAL UNIVERSITY WILLIAM T. BAWDEN.
Normal, Illinois.

WISCONSIN TEACHERS' ASSOCIATION.

The fifty-first annual meeting of the Wisconsin Teachers' Association was held in Milwaukee, December 28 to 31. The gathering was a large one, and the program extensive, consisting of general sessions, and more than a dozen department meetings. Among the latter was numbered that of the Manual Training and Domestic Science section.

"Manual Training in the Elementary Schools: Present Needs, and How to Meet Them," was the title of the first paper presented at this sectional meeting. It was read by Charles A. Bennett, of Bradley Polytechnic Institute, Peoria, Ill. The first need mentioned was a broader conception of the manual-training movement; the second, such a degree of flexibility of organization and method as will allow of more perfect adaptation to local conditions and individual aptitudes; the third, adequate supervision; the fourth, a better understanding of the possibilities of manual training at small cost; and the fifth, the more general training of teachers in the manual arts. Referring to the third need the speaker said:

STATE SUPERVISION SUGGESTED.

"Perhaps the greatest present need of all is adequate supervision. There are, I suppose, hundreds of teachers and principals of schools in the state of Wisconsin, or any of her sister states, who would be glad to introduce some form of manual training if they only knew what to attempt and just how to go about it. Often these teachers are in small towns where the conditions for such work are favorable, and the chief need is for suggestions from an expert who is known to have the approval of the school authorities. I believe that a state like Wisconsin can well afford to employ such a man, and pay him a good salary, and give him one or two assistants if necessary to help just such teachers in different parts of the state, and to work in the interests of greater efficiency wherever the work is attempted. He would not need to force his services upon anyone, but go only where he is wanted. Sometimes he would gather together a group of teachers and give them specific instruction in some form of handwork for a week or more; at other times he would help individuals. The right kind of a man would soon be in such demand that he would have

many more requests for help than he could possibly satisfy. Such a man would have to be more than a mere teacher of manual training or a routine supervisor; he would have to be a keen observer of local conditions, and possess the power to inspire, and please, and help. He should be an expert in drawing as well as in the various lines of construction, and should know something of agriculture. He should have also an unfailing store of refined originality to give quality to his work. Not only would he visit different parts of the state and offer help, but he would prepare outlines, reports and handbooks, which the state would print and distribute.

"It is likely that there would be obstacles in the way of carrying out such a plan of supervision. Perhaps it is not practicable in Wisconsin — that I do not know — but I believe that if it were once started it would spread through all the central states. It is not essentially a new plan. The state of Massachusetts has employed a supervisor of drawing of this kind for many years. He has been known officially as the 'Agent of the State Board of Education for the Promotion of Industrial Drawing.' Under his inspiring leadership the state of Massachusetts has long led all the other states of the Union in instruction in drawing. Why should not Wisconsin or Illinois lead in this greater subject of manual training by adopting the same means? I say greater subject because it necessarily carries with it the drawing, at least the industrial drawing. It is certain that some more adequate means of supervision is needed and for years to come it cannot generally be provided by the city and county superintendents."

The second paper was on "Domestic Economy: Its Place in the Education of Our Girls," and was presented by Miss Laura G. Day, of the Stout Manual Training School, Menomonie, Wis. Miss Day pointed out that to be trained in domestic economy means the possession of a wide range of scientific knowledge of great value if applied in the home. Domestic economy has to do with the elevation of the home life of the people; it aims "to produce clear-minded, self-reliant women — women of character, mental ability and poise, and, above all else, women who are able to apply good common sense to the circumstances of every-day life."

WHEN SHALL WE TEACH DOMESTIC ECONOMY?

"The answer to this question would seem to be, the earlier the better. When we look at child life we see how largely the early years are given to the expression of self through the work of the hand and to the gaining of experience in the same way. We must look further, too, and discover the strong domestic instinct that seems to be a part of every normal child. The little girl with her doll, her house, and her miniature family life is easily led into the study of the real family life, and never loses that early interest. She finds the easiest expression of self in the things that are of the most interest to her. If, on the other hand, domestic economy is introduced later in life, the inertia that is always the result of a lost interest must be overcome, and there is a consequent loss of force and time. Small children with habits unformed, unfagged interest and enthusiasm, respond eagerly to any line of work that has a meaning to them outside the school walls, and that makes of school life something real and tangible.

"In the introduction of domestic economy, as in many other lines of work, there is the tendency to let 'self-expression,' that bugbear to the over-worked teacher, run riot. And here, as in many other places in our system of school work, is a place for the administration of the saving grace of common sense. That the child has a right

to the development of all his God-given faculties no one will deny. That he has the right to the indiscriminate use of these faculties in the working out of his own sweet will, must be denied by any one who has studied the unfolding of the human mind, watched the gradual development of judgment through experience.

"That a child should do a certain thing at a certain time because it is best that she should do so is a wholesome exercise in self-control. That she should do it right is right. There is mental discipline in it. That all individuality and self-expression should be systematized out of the work means a loss of interest, a loss of force, and, in this instance, a loss in the vital relations between school and home. A school-born interest carried into the home re-acts upon the school, and while the aim of the teacher should always be the disciplining effect upon the mind, the eye, and the hand of the child, she must never allow this to interfere with or to detract from the incentives of the pupil, which is the finished product of her hands.

ADJUSTABLE COURSE OF STUDY.

"To this end let me make a plea for the adjustable course of study—the course of study that does not lay down hard and fast rules for all pupils, regardless of the needs and temperaments of the individuals that make up the body of pupils. In this work as in no other we are dealing in an intimate way with the evolution of human life and the home ideal. Here is given all of the opportunity to study the individuality of the pupil, and to establish friendly relations between home and school that is ever given to a teacher in the public-school work.

"By an adjustable course of study I do not mean a course that has no definite sequence or logical progression. I do not mean a course that like infinity has its "beginning everywhere and its ending nowhere." Too much of our special work is done on his plan.

"I do mean a course that is based upon certain fundamental principles, and having a certain logical sequence of mental and physical development. There should be certain exercises for the development of certain faculties of the child, with, underlying all, the purpose to have her think clearly, logically, and to a purpose about whatever the work in hand may be."

After a discussion, in which L. L. Summers, J. H. Mason, Mrs. Ida Hood Clark and others took part, the session was closed by the chairman, Superintendent L. D. Harvey, of Menomonie, with an earnest plea for a more definite formulation of all manual-training work for the benefit of the grade teachers and teachers in the country schools. Flexibility has its place, but what is needed at the present time in Wisconsin is something definite as a foundation to build upon. —C. A. B.

CURRENT ITEMS.

CLINTEN S. VANDEUSEN.

IT is expected that Dr. Alvin Pabst, director of Teachers' Training College, Leipsic, will visit America in May and June, for the purpose of studying the methods and equipments for manual training in American schools. He hopes to visit the schools of all the principal cities in the east and middle west, also to inspect the educational exhibit at St. Louis. Dr. Pabst is one of the foremost leaders in the manual-training movement in Germany, has written extensively in its behalf, and is editor of its organ *Die Blatter für Knabenhandarbeit.* At the death of Dr. Goetze, the pioneer organizer of manual training in the public schools in Germany, Dr. Pabst was appointed director of the college for teachers in Leipsic.

"THE Second International Congress for the Development of the Teaching of Drawing" will be opened the first week in August, 1904, at Berne, Switzerland. At the first of these international congresses, held in Paris in 1900, there were representatives of nearly all civilized countries. The officials of the coming congress are preparing a program covering many phases of the subject, and are making all necessary local arrangements. In connection with the congress an exhibition will be held. The secretary of the congress is C. Schlaeffer, professor at the Art and Trade School in Friburg.

THE Teachers' Training College of the German Association for Manual Instruction, has issued an attractive announcement of its summer courses for 1904. This is the school at Leipsic of which Dr. Pabst is director. Courses are to be given in cardboard work, benchwork, wood-carving, modeling, metalwork, apparatus construction, and glass-working. A descriptive circular can be obtained from the editor of this magazine, or from F. R. Inman, Manual-Training High School, Providence, R. I.

THE eleventh annual meeting of the Western Drawing Teachers' Association will be held in Milwaukee, May 10 to 13. The president of the association, Miss M. Emma Roberts, of Minneapolis, is doing everything possible to make the meeting a success. Miss Eunice Bannister, of Peoria, chairman of the executive committee, announces the following preliminary program:

Stereopticon Talk on Milwaukee — R. B. Watrous, president of Citizens' Business League, Milwaukee.

Lecture — "Art in Machine-made Things" (illustrated) — John Quincy Adams, Philadelphia, Pa.

Paper and Chalk Talk — "Art in Manual Training" — Hugo Froehlich, New York, N. Y. Discussed by R. A. Kissack, St. Louis, Mo.

Lecture — "Evolution of Art" — Ernest E. Fennollosa, New York, N. Y.

Paper — "Design as Applied to Furniture" — Gustav Stickley, editor of *The Craftsman*, Syracuse, N. Y.

Paper — "Manual Training in the Graded Schools" —

Information concerning the exhibits can be obtained by addressing Miss Emilia M. Goldsworthy, 1412 Bellefontaine street, Indianapolis, Ind.

THE National Educational Association will meet in St. Louis, June 28 to July 1. Professor Arthur H. Chamberlain, the president of the department of manual training, announces the following preliminary program:

First Session:

General Topic — Elementary Manual Training.

"The Constructive Idea in the Elementary School"— Dean W. S. Jackman, School of Education, University of Chicago.

"The Place of the Arts in Training for Teaching"—

"Manual Training in Germany as Exemplified in the German Exhibit"—Dr. Alvin Pabst, director Leipsic Manual Training College, Leipsic, Germany.

Reports on Work as Shown by Exhibits —

(*a*) From Teachers' College, New York city, Miss Mary B. Hyde, department of Manual Training, Teachers' College.

(*b*) From Indianapolis, Ind., city schools,

(*c*) From Bradley Polytechnic Institute, Charles A. Bennett.

Second Session:

"The Manual Training High School vs. Optional Work in the Regular School," Charles B. Gilbert, New York city, educational editor D. Appleton & Co.

"What May be Done in the County Schools?" Hon. Alfred Bayliss, Illinois State Superintendent of Public Instruction.

Progress in the South, as shown by exhibits.

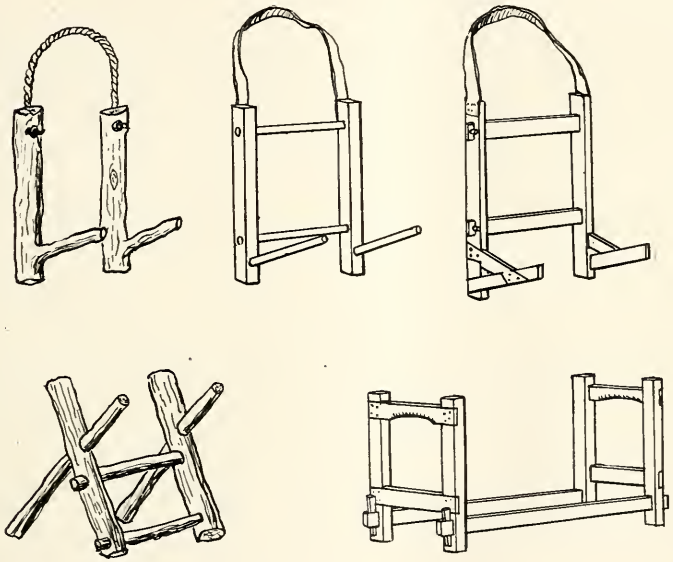
Business — Reports of committees; election of officers.

THE committee of the N. E. A. on "Industrial Education in Rural Schools," appointed at the Boston meeting, of which Supt. L. D. Harvey, of Menomonie, Wis., is chairman, is hard at work, and has determined to give the subject assigned to them a careful and systematic investigation. The plan of the committee is to take up the subject of agricultural instruction in both elementary and secondary schools for rural communities. They find that the field is so large and the conditions so varied in different parts of the country that they will probably make a preliminary report at the St. Louis meeting, and postpone the completion of the final report until a year later.

LUTHER W. TURNER will again have charge of the classes in basketry and woodwork at the Martha's Vineyard Summer Institute. The former will include reed baskets, plain and colored, willow baskets in split and whole willow, and Indian baskets with coils of reed and raffia. Suggestions will also be given in regard to the artistic possibilities both in form and color. The course in woodwork is intended for those whose experience is limited in the use of tools. It consists in careful instruction in the use of tools, and suggestions as to artistic possibilities in proportion of parts, and grains of woods.

MRS. IDA HOOD CLARK, recently in charge of the manual training work at Ashville, N. C., has been appointed supervisor of manual training for Milwaukee, Wis., and a start has been made in manual training in the grades.

THE Summer School of the South will hold its third annual session at the University of Tennessee, Knoxville, June 28 to August 5. Last summer 2100 students attended this school and a large per cent. of these took one or more of the eighteen courses offered in manual training, drawing, and domestic arts. The manual training courses for this year include paper-folding, cardboard work, elementary and advanced knifework, clay-modeling, basketry, weaving; shopwork in wood, bent iron, and brass. Native materials will be used as much as possible, and all work will be done with a view to the needs of the teachers in the schools of the southern states. Considerable attention will be given to the principles of æsthetics and their application to manual training and decoration.



As most of my boys have lots of wood to carry in this weather they have taken great interest in making carriers as illustrated above. These have turned out to be very practical, and in addition have furnished an opportunity to give much thought to design, also skill in construction. The saw-buck shows what can be done with a sharp ax and an auger. Minnesota has five normal schools, in two of which there is no manual training. Two others have some form of industrial work, while St. Cloud has a vigorous department three years old, which has always been very popular, both with the students and with those in authority. The aim has been to make the work closely connected not only with the life of the child in the home but also with his work in the schoolroom. As yet only a few towns around us have manual training, but inquiries are coming in and interest is awakening, showing that the seed is taking root.

GEO. G. GREENE.
State Normal, St. Cloud, Minn.

The Ethical Culture School, New York City, entered its new building January 6, and is now well equipped for carrying on its work. It is not the intention of this school to furnish preliminary preparation for teaching manual training, but is rather a school for advanced work and investigation by those who have had preparation and experience in teaching. In the normal department are two students sent by the Mexican government with a view to their introducing and directing manual training in the schools of that country on their return.

Dr. C. M. Woodward, of St. Louis, will have a model manual-training school in operation at the St. Louis Exposition.

ST. GEORGE'S SCHOOL, Newport, R. I., has added freehand and mechanical drawing to their course in woodwork. It is in charge of Arthur Ray.

CONSIDERABLE interest both on the part of pupils and the public is being developed in manual training in Weymouth (Mass.) Under the leadership of Supt. Elmer Sherman, and by means of private donations, the work has been introduced in one center in South Weymouth, where a room has been equipped with sixteen benches. Here four classes of seventh, eighth and ninth grade boys now receive instruction one day each week from Harris W. Moore, of Watertown. An entertainment for the benefit of the work is already planned and later an exhibition of models will be made. In another section of the town the Y. M. C. A. has equipped a joinery room.

FALL RIVER, Mass., will soon have one of the finest textile schools in the United States. The school has been desired for some time.

PROVIDENCE, R. I.

An addition to the Providence Manual Training High School is contemplated, which will double the present floor space. The school was one of the earliest established, and has grown in numbers until it is now necessary to seat pupils in the assembly hall, and also to seat a large body of girls in the nearby classical high school. The building was one of the first built especially for manual training purposes, and was generously equipped with the best of machinery and tools for a three-years' course for boys. So many girls applied for admission, however, that from the beginning there have been teachers and courses especially for girls. These will be much better provided for in the addition. Since 1898 the course has been one of four years, from nine to three o'clock, except Saturdays. It has combined the high school course with four years of drawing, and the usual manual courses for boys and girls. There have been no elective courses. Recent additions to the manual courses have been weaving, pottery and sheet-metal work in iron, tin, copper and silver. The school will make an exhibit at St. Louis.

AN art league has been formed in Providence for art study and work. A course in pottery work has been given in the Froebel School.

THE Rhode Island School of Design has recently added a new building in which a fine outfit for instruction in textile design and weaving has been installed. It contains also a large assembly hall. Other courses have been able to expand through the increased room, especially the courses in drawing, painting and decorative design. The Saturday classes for children and the classes for public-school teachers are very successful. A course in die-sinking and hub-cutting has been one of the features of the present winter; also a jeweler's course in metalwork.

THE Newsboys' Club has taken wood-work this winter.

THE Y. M. C. A. has given courses in mechanical and freehand drawing, electrical work, sign-painting, bookkeeping, woodwork and other subjects.

MR. LEONARD CAMPBELL, principal of Bridgham Grammar School, is introducing cooking for the girls and some woodwork for the boys. Mr. Campbell was formerly second assistant at the Manual-Training High School. —F. R. INMAN.

ILLINOIS

L. H. BURCH, formerly an assistant to Oscar L. McMurry at the Chicago Normal School, is now at the head of the manual-training work of the Macomb Normal School.

THE University of Illinois will hold its sixth annual exhibit of public-school work in drawing May 12 to 14. This exhibition will include all classes and varieties of drawing executed in the public schools, and the sending of even so small an exhibit as a single mount, from a school, is encouraged. Especially good examples of work are awarded honorable mention by a competent committee. It is thought by the University that the return of these commended drawings to the schools will serve as a stimulus to the students and thus improve the quality of future work.

FOSTER H. IRONS, of Superior, Wis., will give the following summer courses this year at the University of Illinois: (a) Theory of manual training; (b) practical work of the elementary school; (c) practical work of the secondary school.

HARVEY G. HATCH, from the Woonsocket, R. I., Sloyd School, is now in charge of the manual-training work at Rockford.

IN THE recent budget for 1904 passed by the Chicago board of education, ten new kindergartens, five new manual-training and three new household-art centers are provided for.

MANUAL training and domestic science have been introduced in the schools of Elgin this year. A room for the manual-training work was equipped by Chas. H. Hulburd, president of the Elgin National Watch Co., and the equipment for domestic science was supplied by the Woman's Club of the city. The school board provides for the teachers and running expenses of both departments.

In the eighth grade one lesson a week in mechanical drawing and woodwork is given to the boys, and one in sewing or cooking to the girls. In the high school considerable freedom is allowed in substituting these subjects for others in the general groups. Two groups entitled "Mechanical" and "Household Economy" are provided in which considerable time is allotted to the subjects. Lyle I. Brower, formerly of Rockford, Ill., has charge of the woodwork and mechanical drawing.

NEW YORK CITY.

ON FEBRUARY 15 the class in theory and practice of manual training, at Teachers College, made a visit to the Ethical Culture School to observe the work and methods there, and improved the opportunity to inspect the new building and its laboratories. The manual-training shops naturally claimed the most attention. The class was impressed at every point by the careful economy of space and thoughtful arrangement of details. In the wood-turning room, size 22 × 36 feet, there are

disposed twelve benches, twelve lathes, a circular saw, a band saw and a planer. As an illustration of the economy of space, it was noted that the planer was raised so that boards passing through could extend over the tops of the benches, and the circular saw was placed opposite the door so that long boards could project into the hall. At the other end of the building are the forge and moulding room, the machine shop, the general woodworking room and the office and demonstration room. An ingenious device here is a revolving blackboard set in the wall between the demonstration room and the woodworking room, so that the same drawing can be shown in either room by simply revolving the board. Set into the demonstration bench, and under the removable top, is a porcelain tank, directly supplied with water, where experiments with boats, water wheels, etc., can be tried. One room is also used as a manual-training office, library and conference room. The woodworking room is equipped with twenty benches, a long metalworking bench, lockers for 160 pupils, and supply and tool cases. The side vices are of the long, upright, automatically-adjusting kind. The equipment throughout seems to be very thorough and reflects great credit on its designer. WILLIAM NOYES.

WASHINGTON, D. C.

The manual-training schools opened their third year with substantial additions to the enrollment. The McKinley school reported 400 boys and 131 girls. The school is in need of increased accommodations; eight rooms outside the building are now occupied, with the half-day plan in operation for the first-year class. Otherwise everything is in a very satisfactory condition. Our certificate is recognized by all the engineering schools to which we have applied for the privilege and, in entrance examinations elsewhere, our students have made creditable showing. There is a good demand for our graduates for desirable positions. In military drill and in athletics we are in direct competition with the older high schools of the city; one of our companies won the competitive drill last May against seven other companies and this year the captain of that prize company was appointed colonel of the high school cadet regiment. Another of our students was appointed lieutenant-colonel. Both appointments were in accordance with a competitive examination, open to all high schools, and based on scholarship and military fitness. Last season our baseball team won the inter-high-school championship, and recently our football team accomplished a similar feat. No boy can participate in athletics unless he is in good standing in his school work and his deportment record is clear.

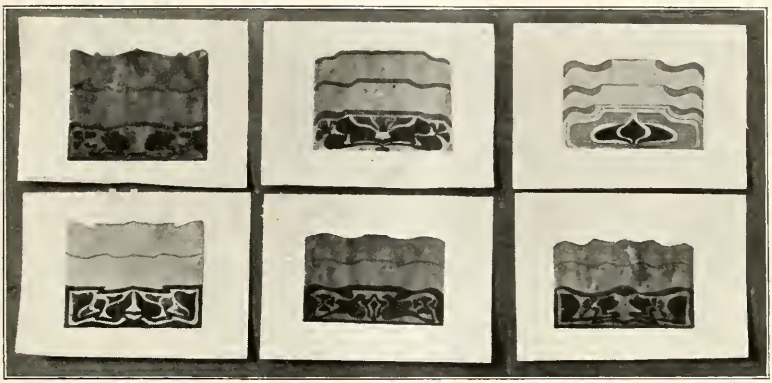
The above facts are cited as of interest to those who watch the development of this kind of school. It may also be of interest to give the proportion of students in the various courses: In the college and normal-school preparatory course there are 266; in the four-year course which does not prepare for college there are 139; in the two-year course, 126. Of the fourteen who completed the latter course, last June, eight returned for another year or two.

The Armstrong school is also crowded and the purchase of additional ground is now being urged upon Congress so that this school may also be enlarged. The outlook for the future of this school (which is for colored pupils) is encouragingly bright. It has already made a place for itself. The preponderance in the number of girls is an interesting fact; there are 148 boys and 228 girls enrolled this year.

J. A. CHAMBERLAIN.

BREVITIES.

If an artisan takes a son for adoption and teaches him his handicraft, one may not bring claim for him.—*The Code of Hammurabi, King of Babylonia (about 2250 B. C.), the most ancient of all codes.*



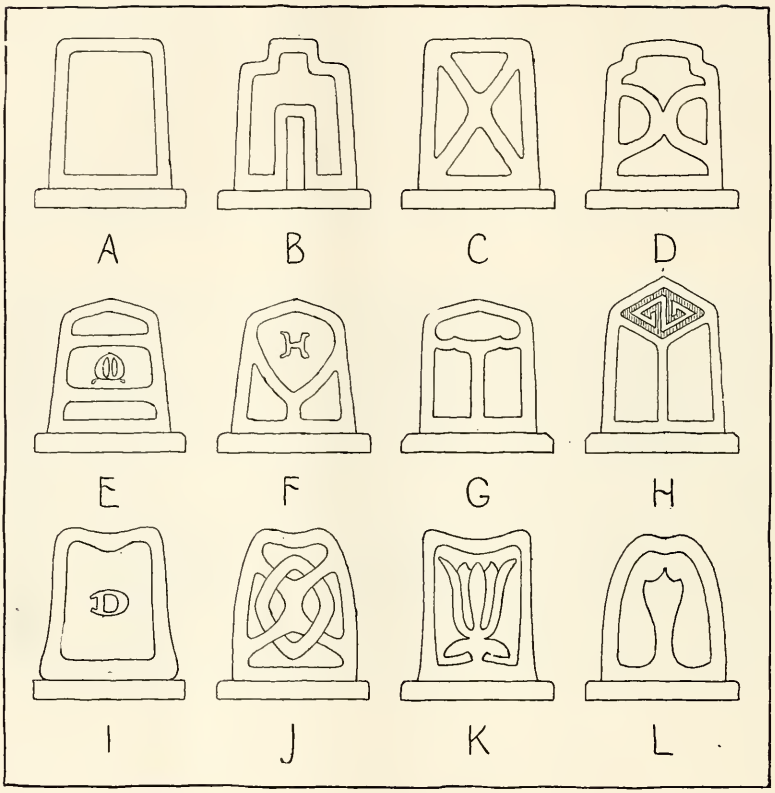
DESIGNS FOR FRONTS OF NOTE PAPER HOLDERS.
FROM PUBLIC SCHOOL NO. 1, MANHATTAN. EDWARD D. GRISWOLD, INSTRUCTOR.

"I can easier teach twenty what were good to be done, than to be one of twenty to follow mine own teaching."—*Shakespeare.*

It is easier to tell twenty teachers how to teach design than to be one of the twenty to teach a boy to design a good book-rack.

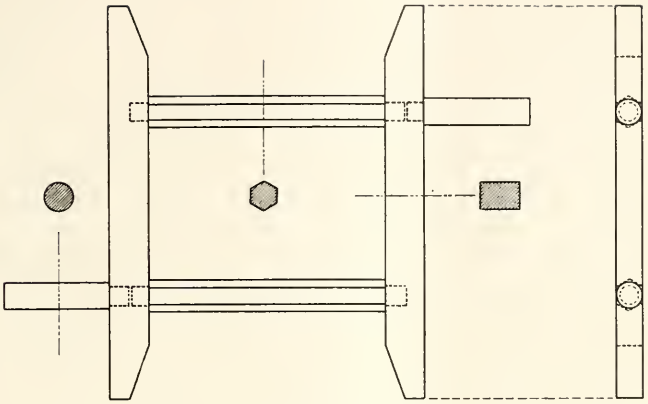
Of course there is a difference in boys, but the boy I have in mind is taking woodworking and mechanical drawing this year for the first time. He has never received much instruction in freehand drawing, or if he has, it didn't reach the ignition point for he has no power to express ideas by means of it. Proportion, balance, symmetry, stability, unity, as applied in design, are new words to him. His mind is not stocked with beautiful forms.

But he likes woodworking; drawing "goes well enough," and he is open to suggestions. If you tell him to design a book-rack he feels as I used to when the teacher told me to write a 200-word composition on spring; I knew absolutely nothing about spring. But if you show him a book-rack and discuss it a while you will set him to thinking about book-racks, and in the course of time he will find that he has some ideas of his own. You tell him that it must be strong; for that reason the ends must be set into the base and perhaps braced. The sides of the end pieces must not be deeply cut or the wood is likely to split off either in the making or

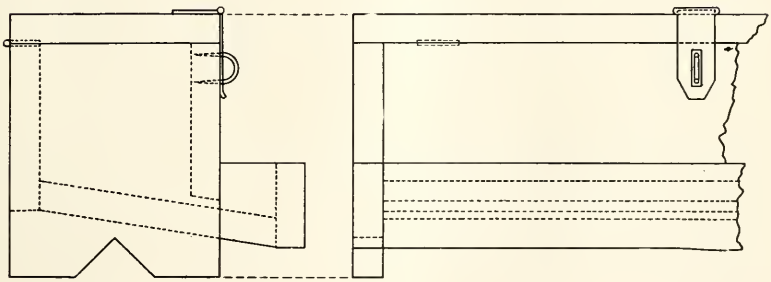


afterward. You suggest that the ends be proportioned like a book. You tell him the rack not only must be strong but it must *look* strong and stable. On this account you suggest that the sides of the end pieces taper upward like the walls of an Egyptian pylon. When a simple, interesting outline has been produced you suggest that the end be bound with a strip of darker color just as doors and windows are bound with casings. To make it still more pleasing the surface may be divided by bands of the darker color; an initial may furnish just the spot that is needed to make the design satisfactory. In some such way as this the boy who has had no direct preparation for designing may be stimulated to get and express ideas that are good.

In the above illustration, *A* represents the type form of rack end which was shown to a class; the others were made by members of the class with occasional individual suggestions from the teacher. The background of *J* and *K* and the upper part of *H* were depressed about an eighth of an inch in depth and the figures slightly modeled.—*C. A. B.*



LINE REEL



PIGEON FEED BOX

Manual-training work was started this year in the Franklin school, Peoria, in connection with the regular grammar-school subjects. Work has been carried on in the regular school rooms in all grades up to the seventh. The board of education fitted up a wood-working room in the basement for seventh and eighth-grade boys who now receive instruction in woodworking twice a week during periods of forty-five minutes each. A course of study was planned in which every boy was to make four objects which were to be used in the manual-training work of the grades below the seventh, viz: a bead loom, a desk board for clay-modeling, a rug loom, and a hammock loom. After the completion of this course each boy planned and constructed pieces for himself. The accompanying drawings represent three of these original projects which may be of interest to readers of this MAGAZINE.—*F. D. Crawshaw.*

REVIEWS.

Samuel Chapman Armstrong. A biographical study. By Edith Armstrong Talbot; Doubleday, Page & Company, New York, N. Y., 1904; 5×7 in., pp. 301; illustrated.

In this book is writtten the life of General Armstrong, founder of Hampdon, and a leader in that small band who a generation ago first began a serious attempt to solve the problem of educating the black man.

The earlier chapters of the volume are largely made up of letters of the young Hawaiian, of his life as a Williams College man of the class of '62, and as captain, major and colonel of volunteers in the years from '62 to '65.

To the reader these letters are chiefly of interest in revealing the forces which shaped the character and fixed the ideals of one who, to quote his own words, determined at the war's close "to stick to the darkies while there is anything to be done for them." Everything indeed was at that time still to do, and it was to Gen. Armstrong's foresight and indominable perseverence that there came into existence at the dissolution of the Freedman's bureau the school at Hampdon which has since helped so much, both directly and indirectly, in the problem of the negro's education.

The solution of this problem, as Armstrong saw it, lay in furthering that truth now so insisted upon by teachers of the manual arts — that constructive work, manual work, is of greatest value as a developmental agent, as a self-revealing agent, as a former of character, and as a social instrument which teaches the worker what his place is in the world and what he must do to fill it. In the words of Booker T. Washington — himself a product of Hampdon Institute — "Armstrong was anxious to give to the colored people an idea of the dignity, the beauty and civilizing power of intelligent labor with the hand. It was his object to lift labor out of drudgery and toil by putting thought and skill into it, and to prove to the southern white man that an educated skilled negro workman was of more value to the community than an ignorant shiftless one."

As one of the first to see the immense social and economic value of industrial education, Gen. Armstrong's name must always stand in an enviable position. To those who, today, laboring at and one or other phases of the same great problem, find themselves hesitant and discouraged at the ignorance, indifference or opposition that they encounter, his life, with its clear aim, its unswerving and untiring devotion, will be found a source of inspiration. —H.

Practical and Artistic Basketry. By Mrs. Laura Rollins Tinsley. E. L. Kellogg and Company, 61 East Ninth Street, New York City, 1904; 5¼×7½ in.; pp. 143, 112 illustrations; cloth; price, $100 *net*, postage 10 cents.—After describing the various materials, native and imported, that are used in basketry, about 25 pages are devoted to work with round reeds or rattan; then comes a brief chapter on the uses of the native willow. The next two chapters deal with articles made of raffia and general directions for preparing and handling raffia. About 50 pages treat of various stitches

or weaves for baskets made on coils of different materials. Chapter XXI gives the author's opinions as to the processes suitable for the various grades of the school and after a few hints on the dying of materials the book closes with a chapter on cord work.

While this book contains some things that will be familiar to the reader of other works on basketry, it also contains some things that have not been seen elsewhere, and much that will make it of value to the grade teacher. The book confines itself to the treatment of processes and projects that are available for school use, and the matter is presented in such form as to be intelligible and usable. The exceptions to this occur in Figs. 18 and 19, which were inverted in the printing, and in the statement on page 52 ["The twigs of the willow may be cut at any time after they have stopped growing, which is some time in August"], which is practically in conflict with another statement on page 53 ["The best time to cut the willows is in the spring, just as the sap begins to flow freely.']

The book is to be commended for clear drawings and excellent half-tones, both of which are abundant.

ILLINOIS STATE NORMAL UNIVERSITY, WILLIAM T. BAWDEN
Normal, Illinois.

The Tree Dwellers. By Katharine Elizabeth Dopp. Rand, McNally & Co., Chicago, 1903; 6×7¾ in., pp. 158. In a series of school readers, of which "The Tree Dwellers" is first, Miss Dopp is preparing for use in the lower grades the material suggested in her "Place of Industries in Elementary Education." The aim of the author is to find in the industrial and social evolution of the race a basis for correlating and organizing the activities of the school. The task undertaken in the first book is of exceptional difficulty — to reconstruct the life of the primitive tree-dwellers and their environment in such a manner as to afford the best educational material for the modern child. It would be too much to claim that the difficulty has been solved, that the natural curriculum has at last been found. It is not evident that the best beginnings are so remote, that occupations can be based upon such slender connections with life, that nature study should be imaginary rather than real, or that myth and classic stories are to be replaced by reading that is not literature.

PROFESSOR OF PEDAGOGY, JOHN F. REIGART.
UNIVERSITY OF CINCINNATI.

Freehand Lettering. Being a treatise on plain lettering from the practical standpoint, for use in engineering schools and colleges. By Victor T. Wilson. John Wiley & Sons, New York, 1903; 6×9 in.; pp. 125; 23 full-page plates; cloth, $1. Contents: Chap. I.— The Construction of Roman and Gothic Letters. Chap. II.— Spacing. Chap. III.— The Use of the Pen, and Offhand Lettering. Chap. IV.— Design of Lines and of Titles. Chap. V.— Lettering for Various Technical Purposes, Including Photo-reproduction. Chap. VI.— The Design of Lettering. Chap. VII.— Mechanical Aids to Lettering.

The appearance of this work is another evidence of the increasing importance attached to the ability to rapidly letter in styles whose chief characteristic is simplicity. We had already a number of excellent manuals upon this subject, the careful study of any one of which will, with due practice, enable the earnest student to become proficient, but in none of these, as far as we are aware, is the fact brought out so clearly and forcibly as in Mr. Wilson's book that acceptable lettering is, after

all, merely a matter of "judgment of values" and "an intelligent sense of proportion," combined with "a measurable knowledge of free-hand drawing."

The author asserts that "fundamentally, good lettering will be good design," and cautions the student against falling into the error of regarding the plates as copies which, if carefully reproduced, will be all that is necessary to give proficiency. He does not mean by this that the student should not give close attention to the forms and proportions of letters, and have these well in mind when lettering, but he does mean that a slavish adherence to rules under "the misconception that lettering is a form of mechanical drawing," and "that the various letter forms, and the spaces between them, can be figured out by measurement," will only produce unsatisfactory results.

Variations in the height and width of the different letters, and how the effect of "stability" in a letter is produced, are treated at some length. We are shown that even the variations vary, and that any attempt to closely figure out such variations will only result "in spoiling the spontaneity of design."

In his excellent chapter upon "Spacing," Mr. Wilson maintains that this latter is also a problem in design; that the proper distance apart of words, and particularly of letters in words, cannot be more than approximately determined by rules, and is best obtained by the eye without mechanical aids.

In spite of the emphasis laid upon freehand work, the last chapter of the book is devoted to mechanical aids in lettering, for the purpose of assisting those who find themselves, through lack of experience or skill of hand, compelled to resort to me chanical treatment.

The plates are very good, the first four in particular, in which are analyzed the proportions of the modern Roman and Gothic letters, both capitals and lower-case, and in a form that appeals easily and quickly to the eye.

Manual-training teachers of high school drawing can well afford to add this book to their collection, even though they might regard it as possibly too advanced for their classes. A perusal of it would give any instructor fresh insight into a most useful and interesting subject.

STOUT TRAINING SCHOOLS, J. H. MASON.
Menomonie, Wis.

Mechanical Drawing, Part 1. By E. F. Giesecke, Professor of Drawing, Agricultural and Mechanical College, of Texas. Published by the author at College Station, Texas, 1903; 6¾×9¾ in.; pp. 79.—The author of this elementary text book gives the beginner a description of the instruments and materials commonly found in a drafting room, together with instructions for their use. The work taken up is divided as follows:

Exercises involving use of ruling pen and triangles; Free-hand and Ruled Lettering; Geometrical Problems; Geographical Arithmetic (Plotting of Curves); Scales, Borders, and Meridians; Plane Curves; Projections; Intersections and Developments; Axonometry.

In the arrangement of the text a plate and its corresponding descriptive matter are placed on opposite pages, enabling the student to have both before him at the same time. The description and directions for each plate are complete. The value of the book would be increased if printed on a better quality of paper.

BRADLEY POLYTECHNIC INSTITUTE, C. C. JETT.
Peoria, Illinois.

Year-Book: Council of Supervisors of the Manual Arts, 1903. James Hall, president; James P. Haney, secretary, 500 Park avenue, New York, N. Y.; 7×10 in.; pp. 151 + 12 for notes + 12 plates; price, $3.—A year ago we suggested the possibility that the Council's Year-Book would soon be looked upon as the best annual summary of the thought and experience of the year in manual arts. The present volume has fully justified our suggestion. The value of the publication lies in the fact that the articles are the result of months of research, and, in many cases, years of experience, and are specific. Rhapsodies on art education and manual-training are no longer needed; we want something tangible, definite, suggestive, and that is what the Council is providing.

The volume opens with a paper on "Supervision of the Manual Arts," by James P. Haney. The sub-title is "Some Notes on Principles and Practice." It is a carefully worked-out analysis of the problem of supervision in a large city, and is full of practical suggestions. "Graphic Expression in Childhood" is the title of the most valuable paper we have ever seen on illustrative drawing. It is written by Julia Cecelia Cremins, and is illustrated with forty-eight drawings by children. Henry T. Bailey contributes a paper on "State Supervision of Drawing," which compares the monarchical and democratic systems of supervision, and gives a summary of the status of instruction in drawing in the United States in 1903. "The High School Drawing Course," by Harold H. Brown, is something unique, and in such specific form as to provoke profitable thought. Other articles of interest and value are on "Applied Art in the High School," by Mabel E. Stock; "The Meaning and Aim of Art in Education," by Alfred Vance Churchill; "Psychology of Drawing in Primary and Grammar Grades," by Frederic L. Burnham; "The Principles of Design," by Ernest A. Batchelder; and "The Year's Progress in the Manual Arts," by Louisa Pierce. The closing paper, "Upon Teaching Design," by the president of the Council, contains many statements which are especially significant to manual-training teachers. We quote:

"Craft is still considered one thing and art another. It is necessary to get back of this idea. The art and craft are one. The art begins with the first thought. The decoration is but the last touch of refinement, sometimes needed, often unnecessary. 'Applied art' or 'applied design' is a misnomer. Design when right is not an afterthought. It is like the flower of a plant. Many plants have no flowers, and yet are completely satisfying to look upon. So it is with many objects."

CHARLES A. BENNETT.

Toilers of the Home. By Lillian Pettengill. Doubleday, Page & Co., New York, 1903; 8×5½ in., pp. 397; price, $1.50, net.—This book is the record of the experiences of a college woman who goes into domestic service to investigate the conditions under which servants work, and to get their point of view. When she began she was without skill in housework, and for that reason her observations covered a wider range. During the one year in service she lived in five homes and under widely different conditions. Her portrayal of the different characters she met as employers and fellow-servants gives interest and color to the book.

Although few of her conclusions are new, they are based on personal observations. She finds a great social gulf fixed between the servant and her mistress, which causes much of the unrest in homes and keeps many girls from doing domestic work. The isolation of the servant, the long hours, lack of chance to rise, and the fact that

there is nothing to look forward to, are some of the drawbacks of such a life. Miss Pettengill believes that servant girls should live apart from their mistresses and should have a standing in society of their own choosing; and that they should be allowed some independence of action — not having every act dictated by the mistress. She found that the incompetency of the mistresses was the cause of many of the troubles among the girls. One of the leavens at work at the present time is the influence of the domestic-science schools in training the daughters of the home in the science and art of homemaking. Women trained in these schools look upon manual labor as dignified, not degrading.

CLARA EMILY BENNETT.

New Publications:

Three new publications have come to our desk during the present quarter. The *Sloyd Record* is a sixteen-page quarterly published in Boston by the Sloyd Training School Alumni Association. It is edited by Gustaf Larsson with the co-operation of six members of the Alumni Association. Its purpose is to give brief accounts of the principles, practice and growth of sloyd. The January issue defines sloyd, gives general principles, a report of the second meeting of the Sloyd Training School Alumni Association, and an address by Mr. Larsson on "Sloyd and Conditions for its Healthy Growth"; also alumni news items and a page of "models invented by students at the Sloyd Training School."

The second is *The Patternmaker*, an attractive trade journal published by The Iron and Steel Press Co. of Cleveland, Ohio. This no doubt will find its way into many manual-training school libraries for the use of the advanced students in wood-working.

The third is *Articraft*, an illustrated magazine which purports to be a "progressive, pocket-sized periodical pertaining to practical art, philosophy, psychology and pedagogy, published monthly at Palisades, New York." If the first issue is typical we cannot see what real demand this magazine will supply.

It is with sincere regret that we learn that the Society of Arts and Crafts of Boston has found it necessary to announce that the publication of *Handicraft* will be discontinued. Though their little magazine has failed to pay expenses, it has made a contribution to the literature of Arts and Crafts which has been much appreciated by thoughtful readers, and its good influence will not cease when we fail to receive new numbers. Many of the best things that have been written on the Arts and Crafts during the past two years have been presented to the public through its columns.

The following have been received:

The Forest and Its Uses. By John M. Woods (practical lumberman.) Boston Manual Training Club; 5½×7¾ in.; pp. 32; price in paper, 10 cents; John C. Brodhead, 48 Holbrook street, Jamaica Plain, Mass. This monograph describes out common woods, their sources, uses, and processes of finding, felling and distributing.

Western Drawing Teacher's Association. Tenth Annual Report, 1903. Mary E. Chamberlain, secretary, Saginaw, Mich.; 6×9¼ in.; pp. 106.

MANUAL TRAINING MAGAZINE

JULY, 1904

A REVIEW OF THE FIELD OF THE MANUAL ARTS.

WILLIAM NOYES,
Teachers College, New York.

TWO large changes have taken place in the educational world since the manual arts assumed an important place as a school subject. The first of these changes is the advent of the new psychology on account of which the whole justification of the manual arts as a school subject has had to be shifted. The other is the relation of the manual arts themselves to the curriculum.

I

Along in the eighties when the manual arts began to find strong advocates and opponents, the so-called faculty psychology had full possession of the field. The mind, so it was believed, was possessed with various powers or faculties, such as observation, reflection, memory, reasoning, accuracy, carefulness, and so on. The object of education was said to be the training of these faculties, the assumption being that each could be trained independently of others. Nature study was hailed as a valuable aid to the training of "*the* observation." History was considered a fine cultivator of "*the* memory." Mathematics stimulated "*the* reasoning power." Language study contributed to *the* power of expression, and the defenders of natural science claimed that it should fill the whole field and train all the powers.

This being the point of view when manual training, so-called, came forward with its claims, it had little difficulty in justifying itself. Indeed it claimed distinctive merit as a faculty trainer. Was it the faculty of observation that needed culture? Behold, manual training cultivated it.

Was the memory deficient? A boy must remember in order to accomplish his manual-training task, and hence manual training was valuable. Another urgent claim lay in its value as cultivating carefulness, accuracy, neatness, etc., and the assumption was that in having to be neat and accurate and careful in woodwork was tantamount to being neat and accurate and careful in everything. And most of all, manual training was esteemed for its training of the will. But since then psychologists have abandoned this point of view, and the "faculty psychology" is utterly discredited.

We cannot properly speak of *the* memory, *the* observation, *the* carefulness, *the* neatness, *the* accuracy of a person. One person has one sort of observation, another person another sort; one person may have a good memory for some things and a poor memory for other things. Accuracy may be characteristic of certain functions or work but not of others. Teaching a person to be accurate in one process does not insure accuracy in everything. Hence, just when manual training thought itself most secure as a means of formal discipline, the underpining of its justification was completely knocked out.

Now, what does the new psychology offer in place of this old faculty psychology, as a pedagogical foundation for the manual arts? For our present purpose three points may be mentioned.

1. That education is largely a matter of acquiring useful and valuable habits. Because to be able to finish a board accurately does not insure accuracy in everything, yet so far as it goes it is valuable, and such power means the acquisition of a certain amount of self-control, and of certain definite muscular and nervous habits. It adds to the fund of experience, by the possession of which a boy can extricate himself from new difficulties as they arise. So far forth he is not an uneducated man who, as Prof. James says, is "nonplussed by all but the most habitual situations."[1]

2. Perhaps the greatest contribution of psychology to the present justification of the manual arts is in its recognition of the importance of motor activity, as conditioning all mental effort. So important does this now appear that even receptive powers are seen to depend upon it. The child cannot get adequate impressions except as he expresses himself. The child may express himself in various ways, through music, through language, oral or written, or through some one of the manual arts. These manual arts, in our day coming to be recognized as of genuine service in education, thus find additional justification from psychology

[1] Talks to Teachers, pp. 29.

as a means of motor training. Indeed, motor training forms such an important part of the value of the manual arts that the proposal has been made that the unsatisfactory term, manual training, be supplanted by motor training.

3. Furthermore, the new psychology recognizes the importance that interest must have in any educational scheme, not at all in the sense that the child should be permitted to do what he pleases, but on this ground: that unless a child has intrinsic pleasure in what he is doing, it is hardly of value to him.

There is no question that the first effect of recognizing the importance of the child's interest was to go to an extreme. Considering his interests amounted to indulging his notions. The fault of this attitude lay in the failure to recognize the fact that a child's interests are not fixed but moving, shifting, progressing. To cultivate these fleeting purposes and interests just as they stand is no better than to train certain supposititious "faculties." But as soon as it was recognized that these interests are but attitudes towards new and enlarging experiences then it is not only possible but necessary to take large account of them. Professor Dewey says: [1] "Any power whether of child or adult, is indulged when it is taken on its given and present level in consciousness. Its genuine meaning is in the propulsion it affords toward a higher level. It is just something to do with. Appealing to the interest upon the present plane means excitation; it means playing with a power so as continually to stir it up without directing it toward definite achievement."

But when interest is used as means to an end, and that end is, e. g., some large subject like human industries, then we are standing on firm psychological ground. Think for a moment of children's plays. These plays are the supreme expression of their interests, and they are largely crude reproductions of social occupations, this for good psychological reasons, too. The great social occupations grow out of man's fundamental relations to the world in which he lives. His interests are the results of his inherent and acquired instincts in providing for his wants, material and spiritual. These show themselves forth in childhood in plays which are small, imitative, faulty make-believes of the great occupations, and in adulthood in the instinct of workmanship and joy of labor.

Only one step, then, is necessary to put the manual arts on a sound psychological foundation, viz., to make its subject matter correspond to the great growing instincts and interests of childhood as they cluster around human occupations and industries.

[1] The Child and the Curriculum, p. 21.

The manual arts no longer need justification as "faculty trainers," for they constitute the field *par excellence*, where the child's interests may grow into habits of social value.

II.

This brings us quite directly to the second great change, the relation of the manual arts to the curriculum. Once manual training, like other school subjects, was content to stand on its own feet, and claim its dues as an unrelated method of training. It appealed with vast assurance to its actual results in arousing interest and energy in boys hitherto indifferent. Professor Scripture takes great pains to show its value to boys in reformatories on this ground. Their standing in all subjects improves when they begin manual training. Manual-training advocates also laid special claim to its practical value. All of this is good so far as it goes; but the point here is, that all this justification vested on its value independent of its relation to other studies. Here, too, a great change is taking place.

Manual training, by contributing to the vitality of the general curriculum, is finding its own greatest life and usefulness. This change is taking place in various ways.

1. First and most simply by various forms of so-called correlation, especially in the lower grades where there is no sharp line to be drawn between different studies, where history runs into geography and geography into nature study and nature study into number work, and number work into constructive work. It is often hard to draw the line between what are manual arts and what are not. An easy line may perhaps be indicated by the distinction that where the materials used give resistance and hence take time, special time, that is the the field of the manual arts.

2. But the manual arts are not merely methods of training. In reality they are becoming an accessory method of study and their subject matter is identical with that of the rest of the curriculum, that is, something of social value in the development of the child. They are positively concerned with subject matter. As to what this subject matter is the present tendency appears to be along two general lines: art and industry.

(a) Once even the art teacher flocked off by herself as well as the manual-training teacher by himself. Now there are many evidences that these two are working in closer and closer harmony. The drawing teacher is giving place to the design teacher, and the manual-training teacher is no

longer content with the useful model; it must also be a beautiful model. In some schools "the carpenter shop" has already become "the studio," and the art work and constructive work are designed and carried out under the direction of the same persons, while the drawing has more and more reference to particular applications. Applied art begins to obtain its due recognition. And so, from this point of view, the subject matter of the manual arts has become the design and production of beautiful things.

(b) But there is still another field into which we are only just entering, that of industry. At the time when we are recognizing that geography means the study of the world as the home of man's activities and especially of his industries, that history is really an account of his industrial evolution, that science chiefly contributes to the further development of industry; in short, that industry is the substructure of society, so handwork is coming to be an actual partaking in typical and representative industries. Beginning with the most primitive industries not because they are primitive, but because they furnish simple avenues of approach to the more difficult, and at the same time correspond to stages in the child's own development, we go on step by step till the boy is capable of appreciating modern industry. So important have industrial processes become in our modern life that no man can properly be called an educated man today who does not appreciate these processes. But an appreciation of industry is best attained by participation in some of its processes. Here, however, stands a great difficulty in that the subject matter of the manual arts is simply overwhelming in its magnitude, so overwhelming that only typical forms can be selected for school use. When industrial processes were simpler, while industry was in the domestic stage, or even in the town stage, almost every one without formal institutional preparation, had some part in industry and knew something of its processes. Today, in order that the young may have an opportunity to appreciate it, it must be reduced to its simplest terms, and there made so representative that it can be comprehended in its relation to the whole; e. g., the modern child should know what prime movers are and at least in part construct them, or lacking that, take simple machines apart and assemble them. He needs to understand mechanical elements, not in any theoretical way, but by practical application. Then there is the great field of machines for transmitting power. There is the field of transportation and its relation to commerce. There are the extractive industries, the building industry, our facilities for communication. All of these are becoming the field of manual arts,

and their introduction into the curriculum constitutes one of the most momentous of changes in the educational world. The manual arts always will be as they have been, an opportunity for the acquirement of manual skill, but simply that they will not be. They constitute far more than a method of training. Their field is the appreciation of modern art and industry as functions of modern social life.

These, then, are the two great changes that appear in a review of the field of manual arts:

1. Their deeper justification by the new psychology in emphasizing the importance of motor activity and in seizing upon the interest of the child for the determination of method.

2. Their enlargement from a method of training in a narrow field to the appreciation of modern art and industry. Their individual value is enhanced and their social meaning becomes prominent.

THE TECHNIQUE OF FORM STUDY IN CLAY.

CHESHIRE LOWTON BOONE,
Montclair, N. J.

IT IS a matter of some importance that teachers of the fine and industrial arts should perfect their knowledge to the point where technique is recognized as an ally and not a tyrant. Some ability and much hard work will give to any one certain skill in the manipulation of paint, wood or clay, but a perfect understanding of what this manipulation means, and why one works in one way rather than another, paves the way for right use of material. This adequate use of material for right purposes has been given as a definition of art.

Since in the primary school, clay, color, wood, raffia and textiles are used as direct means of expression, each idea of construction or form should be expressed in its proper medium and manner. In the primary school a large proportion of conceptions of solid things should be expressed in a solid medium rather than on paper. Such study gives to older pupils a clearer insight into the spirit of craftsmanship, and an appreciation for those treasures of art and industry that have been treated as befits their use and character.

Of the various media suitable for use in expression work in the elementary school, one only, clay, will be treated in this article.

I.

Clay, because of its structure, is quite plastic. It takes the slightest impression and is more easily worked than wax. This plasticity can be better taken advantage of by the fingers than by means of tools. The latter should only be employed as supplementary instruments for picking out details in the sketch. Clay, which adapts itself so readily to any shape, serves admirably to express that large class of solid things—fruits, vegetables, animals, people, pottery, etc., with which children are familiar.

The clay form, whether, fruit, animal or figure, should be built up to the required size, piece by piece. It is really a problem in construction wherein one begins at the bottom by working bits of clay together to form a tile of proper shape and thickness. Upon this tile is built the

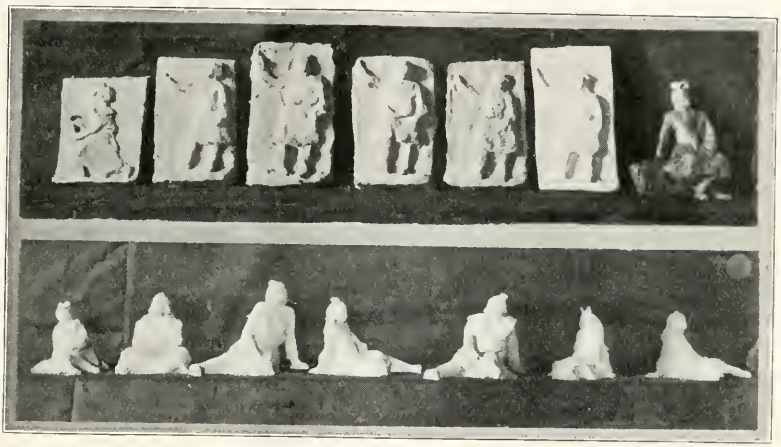
design in relief, or the sketch in the round. Wood, stone and metal are carved, superfluous material being cut away to leave the design; modeling is the opposite process.

This constructive way of working must be rigidly adhered to, else modeling becomes haphazard and uncertain. Clay, being so soft and impressionable, is easily pushed or squeezed out of shape as well as into shape. A bit of work, a small figure, for instance, is built up in the same general way that one would sketch it on paper, save that the lines of construction are observed from all sides instead of one. The important masses are first secured, following the main lines of the figure, by building with bits of clay to the right size. In the illustration (Fig. 1) there is a certain *action* in the figure which must be emphasized. To get this, the body of the sketch is built up first, the position of knees and shoulders indicated and the arm resting on the ground given its proper position.

The proportions being right, the structural basis of the sketch is never disturbed. A careless pressure here or there would tend to throw the whole thing out of plumb and destroy its unity. Hence, insistence is to be placed upon a proper way of working — upon a demand that the model be "constructed" and not pinched into shape. If the model to be made is an animal it has certain proportions that must be determined. The proportions settled, the clay sketch is then built up, piece by piece, to the shape of the model as the pupil sees it from his point of view. Then the model (a stuffed specimen or cast) should be turned around to show another side and again worked upon, that his work and the model which he studies may correspond in form as they do in position. If children will thus continue to work and to build up their sketches very much as one builds up a snow man, piece by piece, the modeling lesson then becomes of true disciplinary and educational value.

The refinements of form and variations in surface are seen but imperfectly, even by persons of mature years; and with children the sense of touch aids in rectifying the judgment of the eyes. The fingers having once felt and handled a given surface, its variations in modeling are more clear. For this reason the model should be near at hand, that the pupil may touch it if possible. Form is seen better when at some time it has been felt. The pupil acquires increased ability to judge form and size by feeling it — general characteristics as well as mere detail. Even the geometric solids, if used, are to be modeled in the way indicated. A cube made by tapping a bit of clay upon the table or desk

is quite perfect as far as form goes, but the pupil has in such work learned less of what "cube" means than if he had made the form entirely with his fingers and actually felt the smooth faces as well as seen them. Many objects, such as animals, vegetables, do not stand out distinctly as wholes, as units, because the pupil sees details, the little things, fur, small spots of color and unevenesses of surface. These things are not important but they catch the eye and confuse the appearance of the thing as a whole. Judgment through the fingers tends to



WORK FROM POSED FIGURE.

correct this. Though one can feel details and small changes in surface, these are not so emphatic as when seen. The model should be placed where it may be handled; if an animal, the first lessons at least should be from some pet that can be played with and handled.

The way in which bits of clay are worked together has much to do with the result. They should be thoroughly welded together by working each succeeding piece out to a rather thin layer, that the sketch when finished shall be solid all through. Clay in drying shrinks a good deal and pieces carelessly put together will later fall apart.

This solidity is absolutely necessary to pieces that are to be fired.

II.

Every material is manipulated in accordance with the properties of that material. Out of this necessary manipulation grows technique. It is the suitable, adequate use of material that makes the result artistic.

1. The first lesson of the year in modeling the figure.
2. Model posed during two periods of forty minutes each.

The fact that one can represent light, fanciful and ephemeral incidents in clay or make realistic roses on pottery does not justify such use. More than this, there are a number of proper uses for clay in the industrial world that for educational purposes would not be profitable in theclass room.

Clay may be pressed and moulded in various shapes that pieces may be reproduced rapidly and economically; it can be used in liquid form and cast like molten metal. All of which is right enough but such applications have a meaning only for mature pupils. One occasionally sees pupils in the primary grades pressing leaves into soft clay to obtain outlines which are later filled in. Other pupils may be seen cutting forms from clay with a knife or sharp wooden tool: or covering fruit and vegetable forms with moist clay, cutting the whole in halves, and filling these simple molds with plaster to make casts. This is interesting and ingenious, but do such exercises make the most of the material? Is not such work merely an apology for what might be done in the study of form?

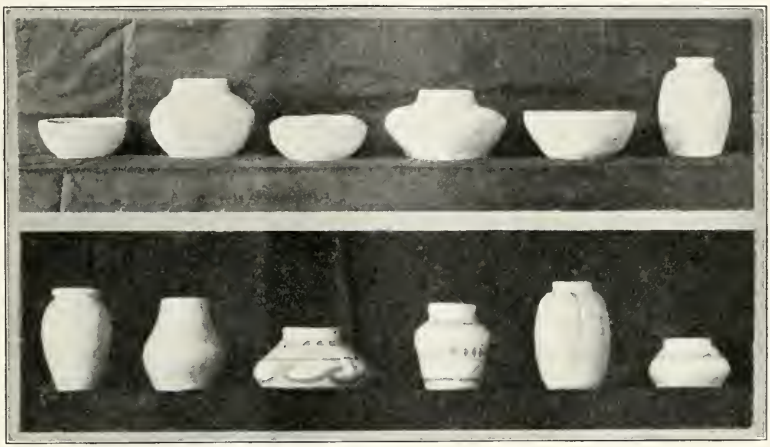
In low relief modeling, the figures, animals, etc., are one plane. In such work perspective is not to be attempted. The model form must be reduced to essentials, with just that action in the figures, and those accessories, that are needed to tell the story. Many animals and figures may not be made in the round since clay legs would not support the heavy body. Either sticks or wires may be used as internal supports, or the model be made in simple relief. In relief modeling a narrow shelf is built out from the bottom of the tile to represent the ground upon which figures may stand. It is never desirable at first to show tecture, such as fur, cloth, leather, etc. The skill necessary to do this comes naturally as pupils acquire more skill in judging form. In fact detail may be quite ignored just as in drawing from the pose; the head is treated as a mass, and the eyes, nose, mouth and ears left to take care of themselves.

These suggestions may help to correct some of the errors due to ignorance of the possibilities and limitations of the natural. As requirements they are exacting as are those of any other medium.

In its possibilities, clay work includes (a) the modeling of units of relief ornament, which with older pupils may take the form of systematic study of classical sculptured decoration; (b) vegetables and fruit forms which serve admirably for early lessons, to fix in mind the appearances of solid objects; (c) animals and figures, which are the subject matter for most illustrations of story and incident; (d) architectural forms, typical buildings and kinds of shelter; (e) pottery bowls, dishes and receptacles common to primitive people and in modern use, together with as much study of the ceramic industry, terra cotta, tiles. fire proofing materials, etc., as possible.

The process of firing clay products, the construction of a small kiln and incidental operations may be handled by boys in the fifth grade at least. Some information might be given relative to the history of pottery, and what was done in historic and pre-historic times with clay products.

Here a word may be said about the connection that naturally exists between geography, history and industry. In communities other than cities, geography may be taken up early in school and very soon the



MOULDED POTTERY BY PUPILS OF THE FOURTH GRADE.

study of the crude material that man used for food, utensils, shelter, transportation, etc., is touched upon. Primitive peoples used the materials at hand in the best way to fulfill their several needs.

Pottery, its historic significance, its production in many forms, due to the kind of natural material, fuel, etc., is one of the industries that result from geographical conditions.

In many sections of the country there are natural clay beds to furnish material of good enough quality and purity to illustrate industrial methods. One fourth-grade class in the schools of Montclair is building a kiln on the school grounds and has brought to the modeling room a quantity of clay from the vicinity. These local clays vary much and fire to different tones of color and it is quite possible to use some of them merely as a decoration upon bowls or jars made of other clay.

Pottery alone with the processes incident thereto — how it is made, the potter's wheel, decoration of ware, burning it, etc., is a subject which cannot be treated at this time. As a subject aside from its industrial bearing, it offers a number of problems in design that can be carried to completion, resulting in objects that are of definite utility.

LEATHER WORK IN THE GRADES.

IRA S. GRIFFITH.
Director of Manual Training, Oak Park, Ill.

AN EFFORT will be made in this paper to state some of the advantages and limitations of leather work for boys of grades seven and eight, and to explain somewhat in detail two of the representative processes. Leather is a common material in the commercial world. The uses to which it may be put are various. For a boy to become familiar with its properties is no small advantage.

Many schools are without any kind of manual training because of the cost of equipment. Very satisfactory work can be done in leather with an equipment costing not to exceed one dollar a pupil. The operations are simple, requiring but little practice to give satisfactory returns. The regular teacher with a little experience can give instruction as well as the specialist. The articles which can be made of leather are closely connected with the home life of the pupil. Another advantage not to be overlooked is the readiness with which it lends itself in the application of design.

On the other hand, there are certain limitations which will prohibit leather work from supplanting to any great extent the benchwork in wood. In the first place, it is gentle work. That is, it does not require in any great degree the exercise of the muscles of the body; such, for instance, as are brought into use in sawing and planing. It is arm, hand and finger work. No boy of grammar-school age wants to be kept long at gentle work, nor should he be. As in sheet metal work, there is a great amount of repetition of simple operations, which requires the closest attention. This tends, as one boy expressed it, to make the work "painfully monotonous" after the novelty has worn off.

Among the things which the Oak Park boys made was a bill-book. As this illustrates one of the methods employed I shall describe the manner of making it.

The first thing necessary is a pattern. A drawing board, T square and triangle are convenient, though not absolutely necessary in making this. Place a sheet of ordinary drawing paper upon this board and

make a drawing as in Fig 1. The dimension lines, however, should be omitted.

In the space marked (A) is to be placed the design which shall appear on the front of the book. For a symmetrical design such as Fig 1, the lines ab and cd should be drawn so as to divide the space into four equal parts. Then with a rather soft pencil draw one-quarter of the design. Fold the paper carefully along ab and trace another quarter by rubbing with a chisel handle the back of the quarter just

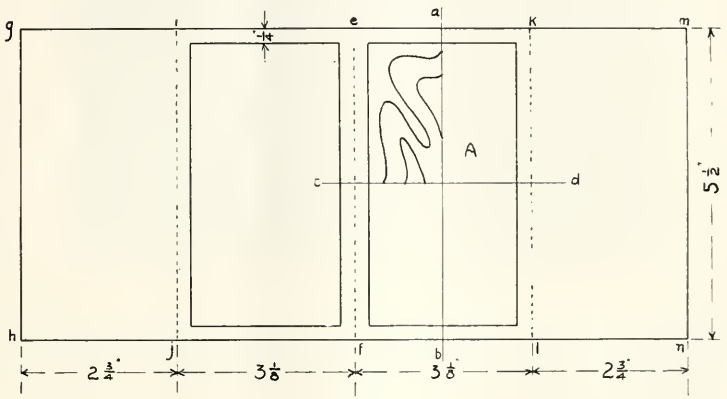
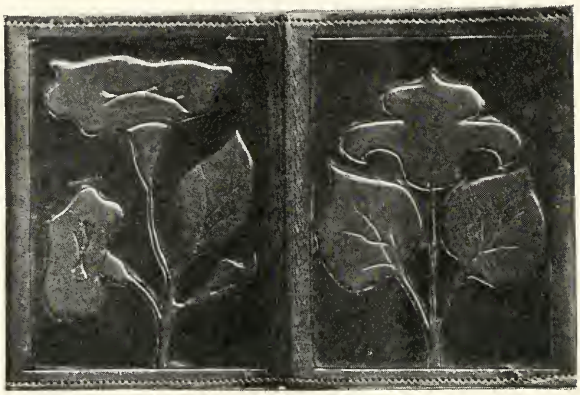


FIG. 1

drawn. Now fold along cd and trace the remaining half. If the same design is to appear on the back, fold along ef and trace. Go over the whole design with a pencil so as to make it distinct. Experience has shown that well spaced simple designs, such as grammar-school boys can make, are as effective as any. Care must be taken that plenty of unstamped surface shall appear. If necessary stamp in the design and leave the background; though, in general, the background should be stamped. In order that the design may be easily placed in position on the leather it is advisable to trim off the surplus paper.

Provide each boy with a modeling tool (Fig 3), a nail set with a hollow point, and a light hammer or mallet. All that is needed to complete the individual equipment is something smooth and hard upon which to work. Marble or heavy glass will do. We used a sheet of brass screwed on a block of wood, as in sheet-metal work. Wood will not do very well, as it absorbs the moisture from the leather and is not hard enough. A pan of water and several sponges will serve the entire class.

The leather should be cut about a quarter of an inch larger all around than the pattern. It is better for the instructor to do this as the skins are of irregular shape, and a little planning will save much leather. A chip-carving knife and a straight-edge are needed for this.



CARD CASE BY EIGHTH-GRADE BOY.

Take the piece of leather and with the sponge and water moisten it on the back—the rough side. It is difficult to say just how much to moisten, as some pieces take more water than others. In general, a few times across with the sponge will answer. If the leather then does not take the impression of the tool, moisten again slightly until it does. It has been given too much water when dark spots begin to appear on the face side and should be allowed to dry some before being worked. The leather should be kept moist while being worked.

Place the leather upon the prepared metal with the smooth side up. The next step is to get the design traced upon the leather. It is quite possible to devise a way of fastening the design and leather together upon the block, but not without some loss of material. As it was difficult for one boy to hold his design in place and trace, I permitted the boys to work in pairs, one holding while the other traced, and vice versa.

All straight lines of the pattern, including the outer edges, should be traced with the V-shaped point of the modeling tool (Fig. 3), aided by a straight edge. Care should be taken to make sharp corners and not to cut the leather. While the tracing is done over the pattern, the pattern need not be injured if the work is carefully done. The design can be traced over with a lead pencil, as the paper keeps the pencil from discoloring the leather.

Remove the design and go over again, using the V-shaped point of the modeling tool, aided by a straight-edge, for the straight lines, and the remaining point held so as to make as narrow a line as possible for the design.

With the hollow-pointed nail set and hammer stamp in the background, being careful not to strike hard enough to cut the leather. If necessary put the nail set on the stone to take off the sharpness of the edge. Special tools can be bought for this work, but the nail set answers very well.

After the stamping has been finished go over the lines again so as to make the design "stand out."

Now cut along the lines which were traced from the lines gh and mn (Fig. 1), and fold along the lines traced from ij, ef and kl (Fig. 1), tapping lightly with the hammer to flatten the fold.

Sew along the ends and cut off the surplus leather and the book is ready for use. In all cutting a chip carving knife and straight edge serve best. The boys took their books home and sewed them on the sewing machine. The leather, though thick, is soft.

The manner of procedure in making the card case is the same as that of the bill-book, except the background is not stamped, but is lowered by means of the round ends of the modeling tools. (Figs. 2 and 3).

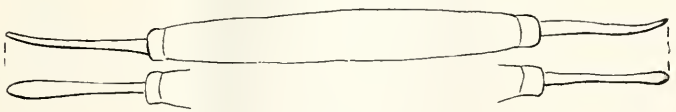


FIG. 2

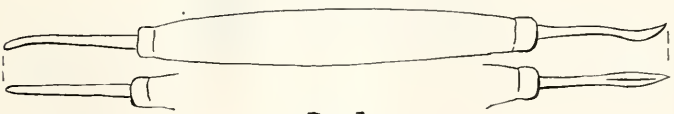


FIG. 3

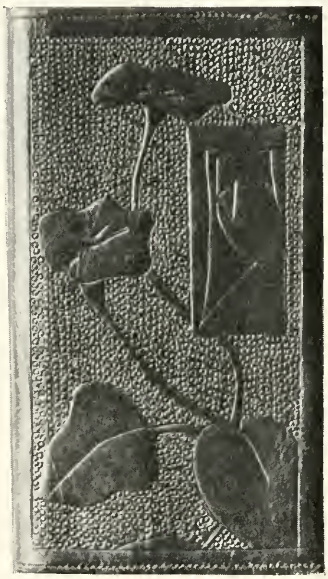
These ends are of various sizes and suggest the uses to which they are to be put. Leather, like wood, has grain, and if you find the surface roughing up, as you try to press it down, rub in the other direction.

Many things which can be made will suggest themselves to you. The boys found no end of things they wanted to make. Small mats, stamp books, plaster cases, covers for note books, bags, belts, magazine covers and portfolios can be made. Many boys made coin purses of the scraps

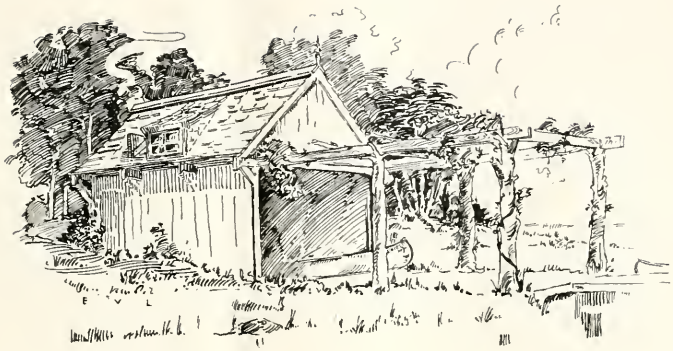
which were left, also name tags, and several made watch fobs to replace worn out silk ones.

Where boys have pyrography outfits very satisfactory results can be obtained by using sheep instead of calf skin. Sheep skin is much cheaper but cannot, however, be treated as described above.

A word of caution is necessary. All kinds of calf skin will not model. Some colors work better than others. The safest way is to order of those who make a business of supplying this trade.



BILL-BOOK BY SEVENTH-GRADE BOY.



THE CAMP OF THE SHUH-SHUH-GAH.

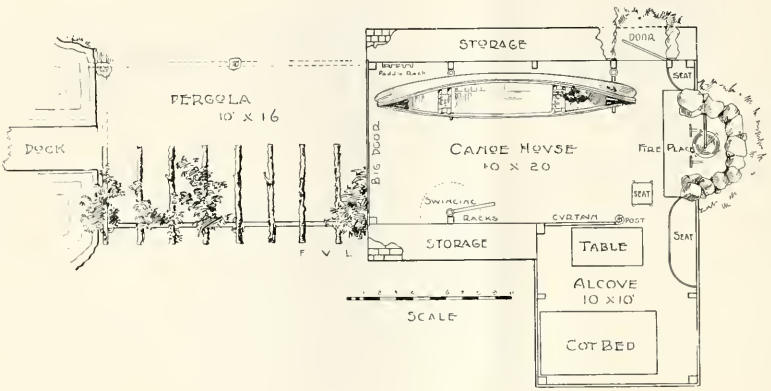
EDWIN VICTOR LAWRENCE,
Bradley Polytechnic Institute.

NINE dollars and for what? A rack, a locker, one-thousand-and-one rules and the privilege of locking the door after you in the house of the Quinebequin Canoe Club." So spake the prophet; and agreeing we bewailed our fate, when suddenly a brilliant idea flashed almost simultaneously through our minds. "Why not gather together two or three more of us and build with the aggregate amount?"

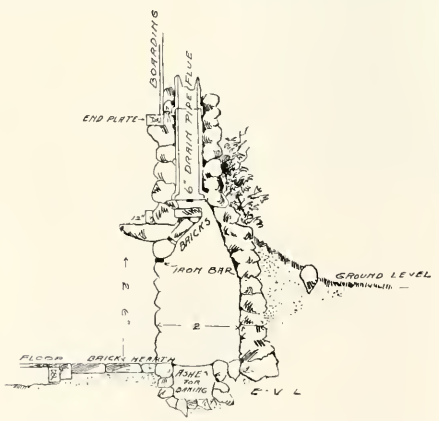
No sooner said than done; so a cold raw nineteenth of April found us, tools in hand, ready on a rocky wooded promontory by the upper reaches of the winding Charles, the Quinebequin of the good old Bay State. And oh, the task we had getting our lumber there!—via the wheelbarrow route to the freight, thence by portage over hill and through wood to the river, and then — well, load 50 or 100 feet of lumber and a couple or so bunches of shingles, saying nothing of yourself and of course "the pup," into a sixteen-foot canoe, then proceed to enjoy it. Try it.

Our land sloped up from the water's edge about three feet in twenty, and as we were to have our floor just three inches above the highest flood mark, we dug into the hillside making a level place 20x20 feet, using the dirt to fill in our wharf. We placed large rocks at the corners

of the main part, or canoe storage, which was 20x20 feet, and of the ell in the rear, a living room 10x10 feet. Midway of the rear wall, placed so as to give warmth to all the room, we excavated for our fire place.

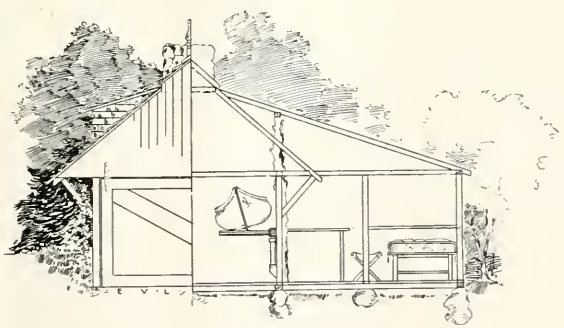


The corner posts were 4x4-inch car stakes 6-foot long, mortised into a 4x4-inch sill and carrying a 2-4-inch header or plate. At the ends of the main part the plate extended two feet outside the wall, receiving, with two false plates midway and braced, the rafters, thus making an eave closet that proved itself most useful for the storage of "duffle." The upper two feet of the rafters were cut away and thence replaced on top, being held apart by a horizontal piece, thus giving with the overhanging shingle a protected ventilator. (See drawing.) The ell was framed in a simple way, save that the upper ends of the rafters were supported by a header which, in turn, was supported by hemlock posts, In order to give strength and a nailing surface for the vertical boarding, a 2x4-inch belt was carried entirely around the building three feet up, excepting across the front, where was the big door. The sides and ends were boarded vertically with matched spruce. The roof was shingled over "furrin" and paper.



A little dormer window, just for a lookout, was placed on one side and with its wooden shutter added greatly to the quaintness. The little service door was hung on big iron hinges (presented by our artist and sworn to be at least 150 years old). The entire front of the main building below the plate was a door, hung at the top with large iron butts, counter-weighted, and when lifted up served as a roof to our piazza.

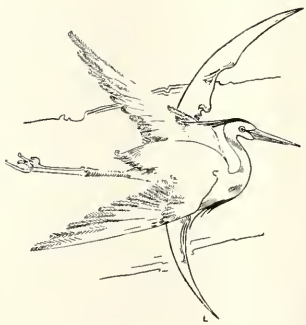
From the front of our house extended two old and weather-beaten stringers supported by willow posts, forming the framework for a pergola over which run wild grape, hop and woodbine. Our fireplace was built of round, moss-covered field stones, with a mantel projecting well forward. Old Father Time had painted well those rocks, and from a picturesque point of view it was an unqualified success; but it took three rebuildings to make it so it would not smoke. The chimney was of 6-inch Akron tile with an outer shell of cobbles over which clambered woodbine and clematis.

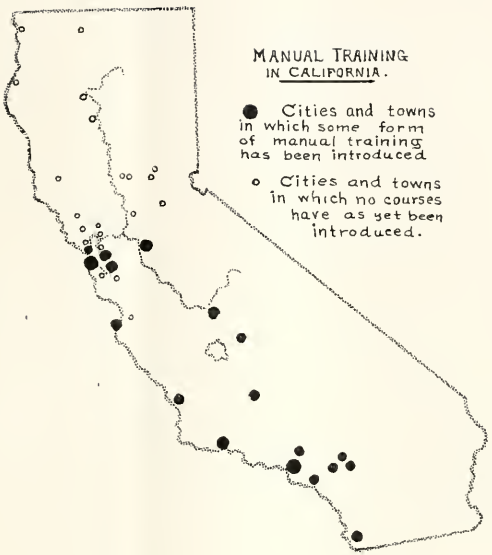


The folding canoe racks were made of two 3-foot pieces of gas-pipe, a tee, a triangular oaken block, and a metal clip combined into a support that was durable and simple, easily swung around and capable of being removed at will.

A word about the cost, and I must put it in round numbers. The land was leased; the lot had no boundaries and we roamed at will. The price was $5 per year and the owner says he cheated us. The building (less the fireplace) cost about $45, the fireplace $3, and it took five men, three boys and a dog a week to build it.

One might judge from the sketches that the fittings were confined to one camp stool and a cot bed, but this is not so. There were rustic chairs galore, rugs all about, cushions of every hue, paintings of camp life on the walls, paddles, oars, trophies, and in all our little house is a palace not to be despised; and should any tired "manual arter" happen along he will always find the latch string out.




MANUAL TRAINING
IN CALIFORNIA.
Cities and towns in which some form of manual training has been introduced
Cities and towns in which no courses have as yet been introduced.

MANUAL TRAINING IN CALIFORNIA[1]

SPEAKING generally, the manual-training investment of California compares very favorably with that of the best sections of the east. For the purpose of the more readily visualizing the situation, the accompanying map has been prepared. From this map it is to be seen that all of the educational progress, guaged by the manual-training standard, has taken place in the southern half of the state, with Stockton as the northern limit. South of the latitude of Stockton, the city without a manual-training course is exceptional. North of that line the state map is an absolute blank so far as munual training is concerned. San Jose and Sacramento are the only large cities in the whole state that have made no move toward joining the majority. There is an unofficial rumor that Sacramento is preparing to get ready to begin to consider the matter. If this impulse should bear fruit, San Jose will stand alone as a monument to other days. Berkeley has been agitating the manual-training question for some years and is now on the eve of

[1]Excerpt from a report presented to the Council of Education of California.

joining the general movement. Oakland has long had an effective manual-training high school, and Alemada has a very prettily developed elementary scheme compassing the whole eight grades. San Francisco, besides seven sloyd centres, a cooking department and a polytechnic high schools, has two excellent industrial schools, endowed and affiliated with the state university. Stockton has a manual-training school of grammar grade temporarily out of operation. Fresno has for several years had sloyd classes for her seventh and eighth grades. Bakersfield and Tulare both introduced the work last year. Bakersfield carries a special teacher for woodwork and drawing. Tulare has woodwork from the seventh to the tenth grades, devoting eighty minutes to the lesson. San Luis Obispo is the seat of a state polytechnic school which, while it has a definite leaning toward agricultural interests, is enough of a techcal institution to figure prominently among the manual-training schools of the state. Los Angeles has well-developed courses in sloyd, sewing, cooking, and a variety of primary work. Steps have already been taken to establish a manual-training high school. San Diego, as early as 1891 had installed wood sloyd for her sixth, seventh and eighth grades and later added cardboard and raffia work in the primary. Many of the smaller cities and towns in Los Angeles and adjacent counties have invested in some form of manual training. Redlands devotes an hour a week to sloyd and sewing in grades five to eight, and has also some primary work in cardboard. Santa Ana allows 110 minutes weekly to sewing and cooking in grades six to nine, but no report is made of what the boys are doing, Pasadena has no manual-training courses of her own, but she has her Throop Polytechnic Institute which, with its elementary, normal and secondary departments, constitutes one of the important manual-training factors of the state. Riverside, Covina and Oxnard have courses in primary manual training and the course of study for Los Angeles county calls for this work in all the rural schools of the county.

The plant now in operation in Santa Barbara is probably not excelled by any of its class in the United States. As in so many cases elsewhere the work in Santa Barbara was begun as a private philanthropy and later turned over to the city school department. Miss Anna Blake founded the school which bears her name, in 1891, and maintained it until 1899. Her death occurring at that time, the school passed by deed to the city, although four years previously it had become a regular part of the city school system. $4,200 is raised annually by special tax. Out of this sum the entire running expenses of the school are met, in-

cluding the salaries of three teachers and a janitor, and the working supplies of 750 pupils.

This plant was the first grammar-school manual-training establishment on the Pacific coast. The present organization includes equipments for sloyd, cooking, sewing, wood-carving, primary cardboard work, and an art room. During the first years of the undertaking the classes were conducted after the regular school hours, but gradually the work was merged into the regular school-day program. The working period is one hour and a half.

The sewing and sloyd begin with the fourth grade and the sloyd continues to the high school. In the eighth grade cooking displaces sewing and the period is of two hours' duration. The equipment throughout is complete but very simple and well kept.

The models belong to the pupils who make them. The work is compulsory, although such a term seems a misnomer as applied to manual training, for the children are never voluntarily absent, and the average attendance is much higher than in the grade schools. When the school was established the townspeople were at first indifferent, then surprised, then interested, and now in hearty sympathy. The same may be said of the teachers.

We have overlooked Pacific Grove, which has a course of woodwork for the ninth grade. In Sausalito and Sunol experiments are being carried on in primary manual training.

Of the normal schools of the state, all have manual-training courses. The Los Angeles school carries sewing, domestic science, sloyd and primary work. The San Jose school reports sewing, sloyd and primary work. The school in San Francisco has courses in sewing, sloyd and illustrative construction, in the service of the nature study and other departments. The Chico and San Diego schools have courses in primary and cardboard work. This inventory of our local manual-training enterprises does not appear trivial when we reflect that thirteen years ago the study was unknown to any schools of this state. North of the parallel of 38° there are a round dozen communities, headed by Sacramento, that should be heard from on this subject.

A manual-training roll-call for the United States, corresponding to the one we have just given for California, would create the impression that little remained to be done. We have to remember, however, that in the generality of cases manual training is a decoratian on the course of study, rather than an organic and pervasive factor in it. We must not rest content with ornamenting our school reports with professionally

phrased rhapsodies on the value of manual training and then follow these up with admissions of a most dismally fragmentary installation of the work. If manual training is a good thing it should be established in a whole-hearted and effective way, that permeates the school department throughout, reaching both sexes and every pupil just as insistently as does our instruction in number and language. Santa Barbara and Alameda have shown that this can be done, and apparently they have shown also that it is a good thing to do.

The subject of English, for example, would cut a curious figure in our school reports if candor compelled us to state that it was taught only in two grades, selected somewhat at random, and given in only a portion of our schools and possibly to only one sex. Yet this is the present status of manual training, even in those localities where it has given most employment to the job printer. It is not the present purpose to urge the extention of the program time allowed for manual training, nor a material increase of the present expenditures upon it; but rather the speedy application of this training to every school and every grade and every pupil wherever it has been tested and proven its usefulness.

RECOMMENDATIONS.

Acting on the invitation of the Council, the committee offer the following recommendations:

1. That a portion of the state school funds be directed toward the establishment of manual training in communities voting to introduce the work.

2. That county superintendents and boards of education systematically encourage some simple form of manual training in the rural schools.

3. That manual-training courses be established in any training schools directed by the education departments of the universities.

4. That a special effort be made to more effectively establish manual training in all primary and grammar grades.

WALTER J. KENYON,
EDNAH A. RICH,
GEORGE A. MERRILL,
WALTER A. TENNY,
EDWIN R. SNYDER,
Committee.

EDITORIAL.

The Grade Teacher

The manual-training problem in the elementary school involves three factors that seem to be fundamental: the course of instruction, the pupil, and the teacher. In past years there has been a tendency to give too much consideration to the first of these to the neglect of the other two. This came about very naturally because in the infancy of manual-training work we received some of our most valuable suggestions from the highly organized courses, or systems, used in foreign countries. But we are discovering that these rigid courses do not give the best results. Flexible courses are now taking the place of rigid ones, and individual initiative on the part of the pupil is being encouraged. Yet in all this development we seem to have clung to the idea that we must have rigid progressive series in the kinds of handwork taught from grade to grade. We continue striving for an ideal manual-training course throughout the elementary school which shall consist of specified industries, as pottery and weaving, in the first grade, and certain others in the second grade, and so on until we have gone through the list of grades and have exhausted our list of industries. Is not much of this energy of planning misdirected? Is not the supervisor making a mistake when he puts great emphasis upon the order of the industries taken up? Is it essential to a graded system? Is there not a deeper question to answer first? Any one of these industries involves simple and complex processes — easy and more difficult work. Weaving is both simple enough for the first-grade child and complex enough for the high-school pupil; likewise pottery and needlework, bookbinding and metalwork. Does the supervisor's knowledge of the pliability and resistance of the materials, or the adaptability of the materials to illustrate the story of Hiawatha, or the development of primitive industries, make his judgment infallible? Is there not another factor in his problem? Shall not the teacher's fitness to direct the work effectively be considered as well as the ability of the child to do the work, and the relation of such work to some philosophical scheme of studies? Shall not adjustments be made on the teacher's account?

The course which is ideal in theory is never ideal in operation unless the teachers give ideal instruction. We all know that the best-planned

scheme of work may prove a failure in the hands of poor teachers. Few grade teachers at the present time have received instruction which enables them to teach even the elements of all the industries suitable for elementary schools, and misfits are the rule among the grade teachers if the supervisor tries to put his course into operation all at once. It is true, however, or it ought to be, that every teacher can do some form of handwork tolerably well; she is likely to know the elements of at least one or two handicrafts, and would be interested in developing her skill in these or in learning others provided she were to be allowed some choice in the matter and could receive encouragement and a reasonable number of helpful suggestions from someone competent to give them. Some teachers detest claywork; others like it. Some have no patience for the accuracy essential in cardboard work, but delight in the free curves of bent iron. Why not let the taste and fitness of the teacher have some weight in the selection of the industries to be taught? Why not encourage her to think and plan and take the initiative in solving her own individual problems; for each room has its own. When the work is presented to the pupils with intelligence and enthusiasm and adjusted to their individual abilities, it matters little which industry is taken up first and which second, which third and which fourth, or if several are taken up together. The order is relatively unimportant, especially in the lower grades, so far as the development in the handwork itself is concerned. The enthusiasm and the manual skill of the teacher, on the other hand, are very large elements in the success of the manual arts in any school. A supervisor, or principal, or superintendent who would attain the highest success in directing work in manual training will do well to take into serious consideration the qualifications of his teachers, and be willing to make reasonable adjustments rather than fret them by insisting that they try to teach subjects for which they are not adapted either by temperament or experience.—*B.*

The good supervisor is a promoter of professional labor—he makes two study where one studied before.

Constructive criticism is harder to give than a Destructive criticism, but it's worth more. Doctors say any fool can cut a leg off, but it takes a surgeon to save it.

The Life More than Meat

Man, we are assured, was made to mourn. Be this as it may, it is quite certain that into the lives of the most cheerful there come cerulean moments. Teachers all, of high and low degree, are bound to see "gray" days, their ceaseless round of patience-taxing duties cannot but know hours of despondency. To such hours the specialist is no stranger. Indeed, more often than to other teachers his work may appear flat and unprofitable. As a supervisor going from school to school, or as a teacher of some art or craft in a single building, the bigness of the problem is constantly borne in upon him — how indeed can one teach so many?

Representing a subject related to the curriculum loosely, if at all, the specialist experiences all of the latent resistance which protects the body politic against the outsider, the skeptical attitude which doubts the value of the special subjects or the unconcealed hostility which flouts them. Nor is the convincing of the skeptical grade teacher or the training of the many pupils all that gives pause. Often there are those in authority who must be led to see the value and necessity of the specialty — trustees must be trained and an apathetic public interested. Forgetful, however, of the fact that primarily he exists to do this very educational work, the specialist not infrequently may be brought to ponder unhappily the query, "To what end — who cares"?

Many indeed care, though they cannot all be known to one another. To "the cause" many have been called, and many also chosen. It must be remembered, however, that it is a cause, and that the success of the ndividual must be sought in its advance, and not in any sm all and personal way. Of all the things to be dreaded by the specialist, the development within himself of a spirit of indifference, is most to be feared. Resiliency is what counts — the power of coming up under pressure, of gaining new strength from rebuff.

Those who would have aid, will find it in the lives of men who have lived and striven for a principle, who have given themselves up to their fellows and have labored serenely, cheerfully and steadily at some Sisyphian task, who have lived that life which is "*the*" life—that life sung by Kipling in the grave measures of McAndrews' hymn — the Life of Service. —*H.*

Technical knowledge inculcated without conscious power to direct it to useful ends, is valueless.

The Mosely Commission's Report

Visitors from afar have from time to time held up the mirror, and when thus offered we have hastened to gaze at our reflection, possessed of a double curiosity to see how we appear to others, and to learn the commentary which such appearance has evoked. Sometimes the image, as in the Sketches of Dickens, has roused our complaint that the glass was unfairly held, sometimes the reflecting metal has been so convex that in the hands of a Max O'Rell it has but served to provoke good humored laughter, while when borne by a Brice its surface has revealed our lights and shades so truly, that students the country over have welcomed the insight it gave into the American commonwealth. But these visitors observed as individuals. In the report of the Mosely Commission we have not one point of view but many, not one judgment but the opinions of a score of specialists, not a reflection of the whole field of American society but a definite examination of a single phase of our social activity that some answer might be made to the question as to "how far education in the United States is responsible for industrial progress."

The Commission itself was composed of some twenty-six gentlemen connected with various educational interests in Great Britain and Ireland. Some came from local Boards of Education, some from professional schools or university chairs. All were the guests of Mr. Alfred Mosely, a gentleman of independent means, whose attention has been turned to the educational needs of his country, and who was anxious that the passage by parliament, of the recent Education Act, should be followed by a scrutiny of the educational system of the United States. Such study, embodied in the form of a report, it was believed would act to mold public opinion and help direct the steps to be taken in the development of the Act's provisions.

Previously to the organization of the Educational Commission, Mr. Mosely had gathered together a similar body known as the Industrial Commission, whose business it had been to answer the question as to "How it is that the United States can afford to pay half a dollar in wages when we pay a shilling, and yet compete with us in the markets of the world?" The Educational Commission on the other hand was to examine specifically into: "The development of individuality in the primary schools;" "The social and intellectual effects of the wide distribution of secondary education;" "The effect of specific instruction in business methods and applied science;" and "The present state of opinion as to the value of professional and technical instruction of university rank designed with especial reference to the tasks of business life."

The notes of the twenty-six investigators are now embodied in a stout volume of just four hundred pages. They review the machinery of our schools and school systems in a score of States. A brief "Joint report" opens the volume. The fact that the Commission came to seek the good and not to criticise short-comings accounts for the tenor of this statement which, beyond a question as to the wisdom of placing our elementary education so largely in feminine hands, presents our schools in a light which may justly cause us pride.

It is to the commentaries made upon our teaching of hand work that we would call particular attention. The important part which motor education is coming to play in the development of individuality elicits the Commission's strong commendation. Every member whose steps took him into elementary class-rooms did not fail to inquire into this training. For the most part the individual reports are highly favorable, though occasionally—as indeed was to be expected—individual members differ widely in their points of view. It is significant, however, that all of those who visited the school directed by Prof. Dewey came away impressed with the value of a course of study which makes constructive teaching a co-ordinate part of the general scheme of instruction—which regards the manual arts as central and not as external elements hanging to the skirts of the curriculum.

To analyze the report in detail is here, not possible. It must, however be noted that it stands as one of the most important of recent contributions to the literature of the Arts. No student of their development should forego its careful perusal. It presents our present educational situation as seen through the eyes of shrewd school-men and kindly critics. It touches gently our National failings in the way of superficial and show work, yet makes plain and emphatic our positive belief in the value of manual education. To the school Superintendent or Supervisor, anxious to carry conviction to the minds of some still reluctant School Board, it offers an invaluable argument.

Needless to say this report will be read by thousands of our English cousins desirous of improving their schools. Its study will scarcely be less earnest by educators in this country. In the light of the suggestions to be read between its lines it may well be regretted that no similar commission is to be sent from this country to England and the Continent. to study and make plain to the school trustees of our great cities our need of free evening art and continuation schools. In the development of these that we are as yet to seek. To their general establishment we must come in the not far distant future. Intelligent study of what

has been done abroad would aid not a little to their immediate organization.

The teaching of the arts aids in quickening the industrial consciousness of the race.

The School Exhibition The end of the school year offers to many teachers of the arts an opportunity to place on exhibition the results of their term's work. No wise instructor fails to take advantage of such chance, realizing that in an exhibition he has a most valuable means of making plain the meaning of his subject. To a few shortsighted persons a display of this kind is looked upon as a school luxury—an expression of the desire to "show off." The rightly conceived and well arranged exhibition is rather, however, to be regarded as a school necessity—as a means of showing school standards, of educating the public and of making friends for the work.

The good exhibition is not one which has been "fixed." Time was when uniformity in the exhibits was a desideratum. Individuality was at a discount. Originality was suppressed. Now at moments the pendulum may be seen to swing as far in the opposite direction and certain art teachers may he found showing specimens of work in water color and the like which are but curiously striking examples of chance success in a slippery medium. Such happy unintended hits are not criteria of success or standards of excellence. Artists call them "flukes." The exhibition of flukes betrays a lack both of insight and honesty on the part of the exhibitor.

The good exhibition is rather one which shows processes, which shows the natural progress of the pupils from the earlier years to the later, which shows the co-ordination of the different arts of drawing, construction and design and which makes plain the manner in which the subject matter of the course of study has had its different elements woven together into one common whole. Perfection of process in the school exhibition is not to be expected and is to be regarded with suspicion when found. It's a very militaire system which will produce fifty perfect copies. One seeing such results may be sure that little thinking, on the part of the pupils, went into the work. Yet to look at some school exhibitions one might imagine that small pupils never made mistakes. The pupil's individuality is in all the arts significant and important. Let it be seen. Let each make plain how he planned his work, how he

related it to his social interests, how he studied out its difficulties and how at last he surmounted them. It has happened more than once at a big exhibition that a little table covered with home work has been, with all its manifest short-comings in technique, by far the most interesting thing displayed. —H.

Taste is artistic judgment gotten through repeated discrimination.

It may be a little difficult to say just what constitutes that complex we hear spoken of as the "American System" of manual training, but it may be safely premised that a better opportunity to see it could scarcely be offered than that presented in the educational exhibit of the St. Louis Exposition. Those anxious to understand the broad details of practice which have come to form the "System," and anxious also to comprehend the influences which have shaped and are shaping its development, will at the great Fair find the explanations writ large.

Narrow margins, crowded make-up and indifferent press-work have for years been characteristic of the reports of our Art and Manual Training Associations. The well-edited and well-printed transactions of the Eastern Art Teachers Association for 1903 mark, it is hoped, the change of the tide. It will be fortunate if the rise of the latter is rapid that the near future may see the proceedings of each of the associations issued as seemly and attractive contributions to the literature of the craft.

Early in July one of our editorial staff, Dr. James P. Haney, will start on a tour through Spain. The first week in August he expects to go to Berne to attend the International Drawing Congress. He will return to New York about the middle of September.

Professor Richards is still in the Orient, and when last heard from stated that he was having the opportunity of his life.

The aphorisms in the editorial columns of the past three issues have been written by Dr. Haney.

ASSOCIATIONS.

SCHOOL CRAFTS CLUB.

A regular meeting of the School Crafts Club was held at the St. Andrews Hotel on January 15th. James Hall, chairman of the evening, opened the proceedings by calling attention to the exhibition of work, asking Walter M. Mohr to give some description of his contribution.

Mr. Mohr showed several articles in sheet metal which he had made under the instruction of Laurin H. Martin, of the Boston Normal Art School. These included bowls of hammered copper; an oblong box of silver of artistic design, with hinged lid and soldered joints, and some fine examples of repousse work.

An assortment of toys — chairs, tables, sleds, jumping-jacks, etc.,— exhibited by Eli Pickwick, were made by children of the public schools of Newark as Christmas gifts for poor children.

A boat of good design and excellent workmanship was contributed to the exhibition by Edward D. Griswold, who read a most interesting description of the collection of materials and prosecution of the work written by the maker, a Greek lad about fourteen yeras of age. The work was done at the boy's home.

Dr. E. B. Kent showed a model of a stationary engine which he had made with a view to determining whether such a project might be undertaken by boys in school. It was believed to be within the powers of 8th or 9th grade pupils.

"A Review of the Field of Manual Arts as a School Subject," was the caption of a paper presented by William Noyes, which will be found printed in full on pages 181 to 186.

Speaking on this subject Dr. Jas. P. Haney said that Mr. Noyes had expressed ideas which he (Dr. Haney) believed to be essential in our teaching. It was unfortunately true, however, that these ideas were not yet generally recognized by teachers, while many who saw the truth more or less clearly failed to find a way to carry it into effect. Reform makes its way slowly. Many teachers are not well advised regarding the later educational philosophy. The social idea in education is accepted by but a limited number. It has yet to be generally accepted by committees on courses of study. All should help in the realization of the better way which Mr. Noyes has pointed out. One may see in the elementary school of Chicago University, and in the normal school at Hyannis, institutions which are developing courses which hold up clearly before them the social ideal.

Arthur W. Richards spoke on "Some Factors determining Kinds of Work for School Purposes." The first problem to be confronted in taking up the work of teaching in the manual arts Mr. Richards believed to be a danger that the teacher be submerged by the pressure of current interests, such as the crafts movement, psychological, anthropological or socialogical interests, or by his own special interests. This throws the responsibility upon the teacher or supervisor of viewing all such interests in their relation to the whole scheme of education, and recognizing the particular

bearing they have upon it; also, of finding their place in the life and development of the child.

This responsibility of the teacher suggests some factors determining the kinds of work which are suitable for the school. First, we need the kinds of work conserving permanent and substantial, rather than changing and personal interests — for example, there is danger of the undue neglect of simple straight work finished in colors suitable to wood, in which there are so many practical, esthetic and moral lessons. It is difficult to see the equivalent of such work, as a basis for either art or construction, in those exercises in which line and color are applied indiscriminately to sofa pillows and book shelves. Secondly, we should adopt occupations expressing the various interests of handwork, as work for the home, industrial work, applied physics and mechanics, and work in the esthetic field. Each of these contributes something towards a feeling of appreciation for the work and progress of the world. Thirdly, we must recognize the demand for different kinds of work at different ages of the pupil. The question is worthy of consideration as to whether there are not nascent periods in the different lines of interest, as, for example, we know there is a period when the interest in dynamics is especially prominent, though we may not know its bounds; so there is a period when the art, or home, or other interests are especially marked, so that certain things could be much more effectually done during that period than at any other time. The value of the work to the pupil lies in that special interest which differentiates it from mere perfunctory work done because he is told to do it. This is what we should endeavor to find out and put in practice in our school workshops.

In discussing this paper Dr. Kent said that the statements made by Mr. Richards were in harmony with that made by President Butler — that the work should start from the child and lead to society. The question as to what things most appeal to the child is not easy to answer. The interests and ability of the pupil must be considered first, then the social value of the work. A special study of home work made by the speaker, indicated that making boats appealed most strongly to boys 13 to 14 years of age, more than half of the work observed being in that line. On the social value side the boat is equally good, as one-half the transportation of commodities is carried on by water. Some practicable model equally typical of land transportation would be a valuable addition to the subject-matter of the workshop.

Mr. Noyes thought we should get at the lines of work which were of permanent interest — the basic industries from which our modern industries have been developed. The primary object of all work is to provide for the necessities of life. Hence the instinct of workmanship. The horse works not because of the oats he is to get tonight, but because of the oats he had this morning. So man works not primarily for pay, but because he takes pleasure in work. The problem before us is to find out the typical industries and follow them up to date.

Mr. Hall regarded the arts and crafts movement as an indication that we are beginning to recognize in the primitive arts the stepping-stones which lead us to the appreciation of beauty in more modern forms. Through the study of the development of the arts we may learn to see beauty in many things which take their form and character largely from the necessities of modern society. The streets of a densely populated city, for example, may be made beautiful.

W. A. Cleveland spoke of methods of teaching something of modern industry. The experiment had been made in Montclair of imitating factory methods by divid-

ing boys into groups, each group having its own foreman. Articles useful in the school were made in this way.

Victor I. Shinn supported the proposition that children's work should be in the line of their interests. Children are interested in the things around them, particularly things that are associated with the home. The speaker here gave an interesting account of the unconscious manual training he had received in his early days — making steam engines, cannon, electrical apparatus, etc. Growth is due to the reaction of surroundings. Children respond to the things of sense; as maturity comes we respond to ideals and are influenced by others. Mr. Shinn's high school pupils were taught first to draw plans and elevations of houses in the mechanical-drawing room, while in the freehand room they made designs for trim, etc. The student should be taught to appreciate simplicity and honesty in design, to understand just what the material he is using will allow him to do, and to consider what will best serve the purpose he has in view.

Harold Brown, speaking of the teaching of color in connection with design in the high school, exhibited a chart illustrating the principles of rythm, balance and harmony in color. These principles are constantly exemplified in nature. In making colored designs pupils would gladly make use of such a chart rather than work at random. Mr. Brown strongly advocated the attempt to analyze beauty — not leave it to the old art school idea that it is only in the air, and purely a matter of feeling.

The Club held its third stated meeting of the year at Hotel St. Andrew, March 11, 1904. In the absence of the chairman of the session, Robert G. Weyh, who had been unavoidably delayed, the program of the evening was opened by the vice president. The exhibition of school work came first in order.

Some specimens of children's work from the public schools of Montclair were shown by Walter A. Cleveland. In the second year looms were made of plain pieces of board with brads driven in the ends. Bags were made on these by carrying both warp and woof continuously around the board. Primitive looms made of twigs tied together at the ends were also used. In the third year basket weaving and paper work were taken up. Some baskets were made of grass gathered by the children. The fourth year was occupied chiefly with clay work which had been shown at a previous meeting. Boys in the fifth year made match scratchers, carts, etc., while the girls made collars embroidered in colors, sewing bags and other similar articles.

A. W. Garritt showed some bowls of hammered copper made under the instruction of Walter M. Mohr; also several models for public school classes. One of these, for seventh year boys, was a sconce of wood ornamented with hammered brass. A very ingenious waste basket, designed for the eighth grade consisted of a wooden framework lined with burlap, the three uprights being secured to the bottom with mortise and tenon joints and decorated with incised carving.

Some very interesting examples of elementary carving were exhibited by Karl von Rydingsvard, who was present as a guest of the club. This work, which was done by normal and high school students at the Ethical Culture School, consisted chiefly of trays of varying size and shape. Mr. Rydingsvard regretted that manual training people seemed so little disposed to favor carving in the schools. The work, he said, is attended with a minimum of danger from cuts, etc., and could be carried on with very few and simple tools. Carving is a natural and appropriate form of

wood decoration. Carved ornaments are not made to hang on the walls. Before we make decorations we must have something to decorate. The trays shown were not outlined first — the piece of wood was cut hollow to form a tray, then the design was made and carved, the outline taking the form of the decorative design.

The first address on the program was that by William F. Vroom, on "The Relation of the Artistic to the Mechanical in the Manual Arts." (An abstract of this address will be printed in a later issue.)

Mr. Noyes agreed with the writer of the paper in the contention that the fine arts could never have come to perfection without the mechanical basis. This is a mechanical age. The advance in the constructive arts has been enormous. We admire the works of art produced in the middle ages and are apt to think that a certain antagonism exists between these and the mechanical work of the present day. The apparent antithesis between the mechanical and the artistic is largely due to the fact that esthetic development has not kept pace with mechanical development. Our ideas of beauty are becoming modified. Ruskin thought a railroad ugly, but many modern artists are coming to realize that such a product of mechanical skill may not be lacking in a beauty of its own.

Hugo Froelich held that while mechanical work is valuable as discipline, art work is of greater value in developing the individuality of the worker. A boy thinks in terms of art. He can take a rough piece of wood, and, by putting his own thought and feeling into it, make it a priceless gem. The mechanical is necessary as a foundation, for we cannot get away from the constructive, and that generally includes the mechanical. This trains a boy in correct habits; art makes him himself.

Mr. Hall took the ground that the mechanical is necessary to the artistic—the two cannot be separated. While the artist is working towards his ideal his work is largely mechanical; it is only at the moment when it takes form and begins to express his ideal that the artistic element prevails.

Replying to a question by Geo. F. Buxton, Mr. Vroom explained that it was not claimed that training in certain moral habits was the only, nor the chief, benefit of manual training. There was nothing in the paper intended to controvert the theory that its value lay chiefly in the development of the mind through motor activity, its effective appeal to the child's interests and his introduction through it to the industrial world.

The evening's program being completed, W. E. Stimpson introduced a proposal that the club make occasional visits to factories for the purpose of getting more in touch with the real work of the industrial world. New York has a large number of factories of various kinds, and the privilege of seeing many of them could probably be easily obtained by the club.

Mr. Richards suggested using the club as an influence to get permission for visits by individual members, who might, perhaps, take groups of boys with them.

Dr. Haney said that in this movement we were touching the vital question of the industrial education of the people. He believed the time was coming when a boy could find a place in the high school where his education might be carried along on technical lines. Many boys who now leave school at an early age would willingly remain if a course of elementary industrial instruction were offered. He was heartily in favor of taking action on Mr. Stimpson's suggestion.

After several other members had expressed views favorable to the plan a motion was passed authorizing the chair to appoint a committee to take the matter in hand.

The last meeting of the Club for the season was held at the Ethical Culture School, 63d street and Central Park West, on Friday evening, May 13. An interesting feature of this meeting was the inspection of the new building by members of the Club under the courteous direction of the principal, Mr. Frank A. Manny.

At the business meeting the following officers were elected for the ensuing year: President, Chas. R. Richards; Vice President, Wm. H. Noyes; Secretary, Geo. F. Stahl; Treasurer, Walter M. Mohr. Committee on Program, the President and Vice President, Hugo Froelich, James Hall and Eli Pickwick, Jr. Committee on Admissions, Louis Rouillion, Wm. A. Worth and Frank N. Pierce. Committee on Entertainment, Albert W. Garritt and Chas. C. Sleffel.

Arthur W. Richards, for the committee appointed at the last meeting to consider the matter of visiting workshops, submitted a report covering the following points: Such visits should be of value to members of the club as giving an opportunity for the study of industrial practice, affording new ideas as to the possibilities of school work and promoting a better understanding between industrial and school workers. There are arts and crafts shops and manufacturing shops. The interest of members of the club in the former is obvious, as to the others we need to know what they are doing to satisfy the demands of the public and how they are doing it. It was recommended that visits be arranged to take place on the morning of the third Saturday in each month, and that a standing committee be appointed to select places of interest and carry out the necessary negotiations for such visits; also that a catalogue of workshops be sent out with each meeting announcement. A list of metalworking and other factories was appended to this report.

Frank N. Pierce exhibited some specimens of knifework made by normal students of Pratt Institute. These included pin balls, picture frames, match boxes, larger boxes, etc. The articles were finely finished with various colored stains and wax polish, the work being suitable for fifth or sixth grade pupils. It was claimed for this line of work that it may be done in the regular class room, that it gives skill in handling the knife and some knowledge of the nature of wood. Basswood ¼-inch thick is the heaviest stock used.

Some fine work in sheet metal, from the Brooklyn Manual Training High School, was shown by Victor I. Shinn. There were fob ornaments, scarf pins, hat buckles, napkin rings, etc., made of silver, brass and copper. Most of the work was done after school hours by a Crafts Club consisting of boys thirteen to fifteen years of age.

An address on "The Possibilities in Kinematics as a part of High School Mechanical Drawing," by Louis Rouillion, having been omitted from the March program owing to Mr. Rouillion's illness, was presented at this meeting. A series of drawings made by fourth year high school students was shown, embracing graduated exercises in this line of work. Methods of plotting curves were introduced by means of gear problems, the ordinary gear wheels being followed by elliptical, helical, annular and bevel gears and, most difficult of all, the worm wheel. Problems in changing motion by means of cam movements, the principle generally underlying the construction of automatic machinery, were then introduced. These began with the simple heart cam and proceeded, increasing in complexity, until extremely intricate pieces of mechanism were evolved. The work was given in the form of problems and proved to be so fascinating that complaints were made that boys were sit-

ting up late at night and neglecting their other work studying cams. Some students, after plotting on paper an arrangement of cams which would produce the movement of a pencil in writing their initials, made the machine to prove the correctness of their work. One had constructed an extremely clever piece of mechanism, which would write his name in full. Many boys, through their work in Kinematics at school, had proved their aptitude, or perhaps developed an aptitude for planning mechanical devices, and had subsequently taken important positions as designers of machinery or some kindred line of work.

A paper relating to "Physics in the Workshop" was read by Robert W. Burnham, who took the ground that the workshop offers excellent opportunities for a practical application of the theories of physics. The two departments ought to be mutually helpful. It is often difficult to get a piece of apparatus correctly made by a skilled mechanic, while it might be done by the pupil himself under the intelligent guidance of the workshop instructor. Boys might be trained to repair apparatus, thereby gaining skill and knowledge of principles while helping the Physics teacher. Frequently improvements might be made in existing apparatus, or something might be devised for new experiments which could not be bought from the dealers. Much benefit would accrue to the pupil in the appreciation of accuracy in mechanical work and in experimental operations. Care and thoroughness will take on a new meaning. One problem worked out in concrete form in the shop will do more to develop a boy's reasoning powers than hours of theoretical teaching in the class-room. In conclusion Mr. Burnham cited numerous instances of the correlation of physics and shop work which had aroused a deeper interest in physics on the part of the pupils, while affording them the benefits of manual training, and had proved in every way satisfactory.

Arthur L. Williston, chairman of the evening, expressed approval of the plan of correlating physics and workshop practice. Some very fine specimens of apparatus were exhibited as a practical illustration of the co-operation of the two departments at Pratt Institute.

Refreshments were served, as usual, at the conclusion of the evening's program.

WILLIAM F. VROOM.

CHICAGO SLOYD ASSOCIATION.

The annual meeting of the Chicago Sloyd School Association was held April 16, 1904, at the Chicago Sloyd School, 39 State Street, Chicago. Interesting reports came from members of the Association teaching outside the city, and preparation of work for the St. Louis Exposition was the theme of most of them.

Miss Ericson, of the Industrial School at San Juan, Porto Rico, told of the encouraging growth of manual training in that Island. Dr. Lindsay, commissioner of education, is actively interested in its extension, and during the last year appropriations have been made for the support of the industrial schools. Frank H. Ball, of Worcester, Mass., has been made supervisor of manual training on the Island, and two new industrial schools at Ponce and Arecibo were opened during the winter. To the two schools already established have been added new departments and equipment. Miss Ericson's sloyd classes are large, and with the older pupils stress is laid on inlaying and the making of light furniture. The native woods are numerous and beautiful and are now for the first time obtainable for shopwork. Miss Ericson says, "The people of Porto Rico possess particular taste in doing fine, dainty work,

and they display therein a wonderful patience. This is evident in the inlaid work of our pupils, who delight in the joining of the smallest pieces of rich-colored woods, trying to bring out effects and to match well the colors." The girls of these industrial schools are taught drawn work by native teachers, and there are cooking departments where they learn the best methods of preparing native fruits and vegetables.

The industrial schools of Porto Rico will have a large exhibit at St. Louis.

Miss Lagergren reported the work of the State Institution for the blind at Jacksonville, Ill. She says that totally blind boys do better work than those who can see a little, for these latter depend too much on the little sight they have. She gives one instance of a number of boys, some blind and others with more or less sight, each of whom made a section of a screen; a totally blind boy did the best work. Miss Logergren will have four blind pupils at work in the Educational Building at St. Louis during June.

In the sloyd department of the Illinois School for the Deaf, at Jacksonville, a graded course of models is followed, though opportunity is given for individual designing. The boys often design such articles as can be used in their games—slingshots, kites, sleds, baseball bats, etc. The models made are taken by the children to their homes at the end of the school year. Miss Eaton speaks of the difficulty many of these deaf boys have in using measurements, and in remembering the names of tools.

Trinity Church Settlement, at Buffalo, N. Y., has seven sloyd classes each week under the direction of Miss Edna Bryan. During the early part of the year a course of models is followed, but by spring the boys who have been regular in attendance are ready to originate their pieces of work. A number of needs of the settlement have been supplied in these classes—a newspaper box, flower sticks and looms for the kindergarten. There is a class in basket weaving for girls.

Miss Estelle Dalby, supervisor of manual training in the city schools of Huntington, Ind., sent an outline of the course used in that city. There are no kindergartens, so the first-grade weaving is necessarily simple. Sewing is the handwork of the third and fourth grades, together with clay modeling, paper folding and cutting, which have place in all the primary grades. In the fifth grade mechanical drawing and cardboard modeling are used, and in the sixth basket weaving. The classes of boys and girls are divided in seventh and eighth grades, the girls sewing and the boys doing bench work.

The manual arts department of the public schools of Fairbury, Ill., is under the direction of Miss Margaret Paisley. Boys of the last three grammar grades and of the high school do woodwork. The pupils make their individual designs in the art classes and work them out in wood in the shop, which has been well equipped by Mrs. Walton of Fairbury. In the lower grades clay modeling, paper cutting and basket making are taught.

Informal reports, often interrupted by questions and discussion, were made by teachers present at the meeting.

Miss Butler, of the School of Education of the University of Chicago, told of the work she had recently seen in New York. At Pratt Institute there is being worked out a most interesting course, based on the history of the industries of mankind. Pratt Institute aims to give its normal students a thorough technical training, and then leaves the individual student to make his own application in teaching. At the Teacher's College a knowledge of materials is gained and ability to handle them, and

while there the teacher must adapt it to pedagogical ends. In the Ethical Culture school constructive work illustrates the regular grade work.

Miss Anna Murray, principal of the Chicago Sloyd school, told of the public schools of Stockholm, Sweden, as she saw them last spring. Knitting and sewing are the sloyd of the lower grades for both boys and girls, but later the classes are divided and the girls continue to sew, while the boys have cardboard modeling, then wood, then iron work. Miss Murray had with her some fine drawings made by pupils of high-school age at the Technical school of Stockholm. Among them were a number of studies from nature and their application to design, in ink and water color. They were all beautifully executed. This technical school is a trade school supported by the state and has many departments.

The meeting closed with an interesting account of a visit to the sales rooms and factory of the Stickley shops near Syracuse, N. Y., by Miss Langley of the School of Education.

EMILY M. PRYOR, Secretary.

WESTERN DRAWING AND MANUAL TRAINING ASSOCIATION.

The eleventh annual meeting of the Western Drawing Teachers' Association was held in Milwaukee, Wis., May 10th to 13th. This was the last meeting under that name, as the Association will hereafter be known as the Western Drawing and Manual Training Association.

The first session was held in the assembly room of the Seventh District school on Tuesday afternoon and was most delightfully opened with singing by the school children. The music rendered at the opening of each session added very greatly to the program prepared by the Association. The strong chorus of 250 boys' voices was most enthusiastically received; also one of a hundred fifth-grade children. These choruses were led by Mrs. Frances Clark, supervisor of music in the Milwaukee public schools. Addresses of welcome were given by Superintendent C. G. Pearse and President McKenny of the Normal school. Both speakers were very happy in their remarks and made the visitors feel very much at home. Following the few words of greeting by the president of the Association an illustrated talk on Milwaukee was given by R. B. Watrous, secretary of the Citizens' Business League. The views shown and the statistics given proved conclusively that beer is not the chief business interest of the city—which it claims to have made famous.

The evening lecture by John Quincy Adams, of Philadelphia, was greatly appreciated by an audience which filled the Grand Avenue Congregational Church. His subject was:

"BEAUTY IN MACHINE MADE THINGS,"

and was a strong plea against crediting the machine with all that is ugly in present-day furniture. "The trouble is with the designers who think in terms of tools rather than in terms of machinery. It would be impossible to supply the market with hand-made furniture, so, as the machine has come to stay, it would be better to make designs which recognize its limitations. Beauty is a matter of proportion and structural line and these can be carried out by machinery as well as by hand. It is the brain of the designer which supplies the art. There is danger of the pendulum swinging too far in this return to 'hand-made' things and leading us to make by hand what could be better done by machinery." Mr. Adams is in full sympathy with the

manual-training movement and his words of warning were received in the same friendly spirit in which they were given. His lecture was fully illustrated by slides showing pictures taken in the various furniture stores of Philadelphia and the houses of Darmstadt Colony, Germany.

Both Mr. Froehlich's talk on "Art in Manual Training" and Mr. Fenollosa's on the "Structural Basis of Art" accented strongly the same fundamental principles of simplicity in design and attention to structural lines. Mr. Froehlich made his talk most practical and helpful by means of blackboard sketches and articles of handicraft selected from the work on exhibition. Mr. Fenollosa's lecture was illustrated with a comprehensive selection of lantern slides, carrying his subject from the simplest design of the art student to the masterpieces of the Old World.

Mr. Kissack, of St. Louis, gave an interesting paper on manual training from the art standpoint, and William T. Bawden, of Normal, Ill., an exhaustive plan for manual training in graded schools. Mrs. Ida Hood Clark, supervisor of manual training in the Milwaukee public schools, spoke on elementary manual training.

The program for Friday's session was not given as published as several of the speakers were unable to be present. Mrs. Perkins' place on the program was taken by Mrs. Wynne, of Chicago, who gave a most witty and interesting talk on arts and crafts as carried out at Deerfield, Mass. Mrs. Wynne is president of the Deerfield association, and no one who has heard her talk and come under the influence of her delightful enthusiasm will wonder at the success of that village industry.

The business meeting was held on Thursday morning and was chiefly devoted to the new constitution. Besides the change of name the following important points were decided: All officers shall be elected for a two-year term, the election of president and treasurer to alternate with that of vice-president, secretary and auditor. The annual membership fee shall be two dollars with an addional fee of one dollar for those who have the traveling exhibit.

The next meeting will be held in Chicago at the invitation of the Art Institute and Armour Institute.

The election of officers for 1904-5 resulted as follows: President, Miss Lucy Silke, of Chicago; vice-president, Charles A. Bennett, Bradley Polytechnic Institute, Peoria, Ill.; secretary, Miss Chamberlain, Saginaw, Mich.; treasurer, Miss Annette Wales, Milwaukee; auditor, J. E. Painter, Minneapolis.

Two very delightful receptions were tendered the Association, one at the Plankinton Hotel on Wednesday evening by the citizens of Milwaukee, the other an afternoon tea at Milwaukee-Downer College with Miss Sabin as hostess. Both were largely attended and thoroughly enjoyed. —M. E. R.

THE EXHIBIT.

The usual exhibit of pupil's work in drawing were made from about twenty-five cities and towns. The fact that so many schools had prepared extensive exhibits for the St. Louis Fair reduced the number of towns represented somewhat, although numerically their places were nearly filled by several towns never before represented in the exhibits. The presence of these new exhibits is evidence that interest in the Association and its work is steadily growing. We missed the old faces, but we were glad to welcome the new.

The influence of the traveling exhibit was plainly seen in much of the work displayed. A decided improvement over former years was shown in the mounting of

the work; it was better classified, better labelled, and, in the majority of cases, not so many exercises were crowded on a mount, although in the preparation of exhibits the tendency to think of the number of exercises shown, rather than the best appearance of a few exercises, is still evident. This is another indication that the principles of design in their broadest application do not yet sufficiently influence general art work along all lines.

Observational or representative work predominated very largely, as it should, in the work of elementary schools. The subjects represented were, in general, landscape, plant form, figure and animal, still-life and design. The work seemed to be done with freedom, spontaneity, and freshness, showing a delightful spirit of joy in the work. This and the attitude of the thousands of visitors who looked at the work with keenest interest are most hopeful and encouraging signs for popular education in art. With so much interest displayed by children, teachers and the supporters of the public-school system, the great work must go on until better methods of teaching and a clearer understanding of the great and fundamental art principles have affected not only the work of the schools, but the attitude of the American people toward art and its relation to humanity. —B. E. S.

CURRENT ITEMS.

CLINTON S. VANDEUSEN.

RECENT newspaper items state that the widow of Simon G. Reed, a pioneer and capitalist of Portland, Ore., who died recently provided in her will for the founding of an institution in Portland to be known as Reed Institute. The Institute is to combine instruction in fine arts, sciences and manual training, and is to be conducted with special regard to the needs of young men and women compelled to earn their own living.

DR. JOHN DEWEY, head of the department of philosophy in Chicago university, has been elected professor of philosophy in Columbia university. We congratulate Columbia.

THE new Carnegie Technical school for Pittsburg will be interesting to manual training workers. Director Hammerschlag is now hard at work giving lectures and interviews so that the public may know of its plan and scope. A lecture course is being prepared which will include able speakers in all the different subjects or courses of the new school.

WALTER G. WESSON has resigned his position as director of Manual Training in the schools of Worcester, Mass., to take effect at the close of this school year. He has accepted a position with his brother, J. E. Wesson, a shoe manufacturer.

THE following comes from San Francisco under date of June 7th; "Manual training is slowly but surely making headway on the Pacific Coast. The instructors in manual training in San Francisco are to receive a raise of $200, which is a step in the right direction. The outlook over the entire Coast is bright and promising."

THE trustees of Pratt Institute have announced that their high-school department will be discontinued at the close of the next school year. Now that public manual-training high schools are assured in both New York and Brooklyn, the original purpose of the high-school department has been accomplished.

ALBERT W. SMITH has been appointed director of Sibley College at Cornell university to succeed Dr. Thurston, who died last October. Mr. Smith is at present head of the engineering department at Stanford university and is a man of wide experience both in educational and engineering work.

E. J. BENDING, principal of the manual-training department of the Michigan State School for the Deaf, died recently at Delevan, Mich. He was the father of E. A. Bending, principal of the Hackley Manual Training School at Muskegon, Mich.

DETROIT, MICH., is one of the progressive cities in manual-training work. There are, at present, twenty special teachers of the different branches of manual training and fourteen manual-training centers. The men teachers in this line of work have formed a Manual-Training Teachers' Club for the study and discussion of topics relating to the subject. Homer T. Lane has been elected its president and Wm. A. Sargent secretary-treasurer.

A notable feature of the recent graduating exercises of the evening schools of Boston was the showing made by the two hundred adult pupils in millinery, dress-making, woodworking, printing and embroidery.

J. R. SPARKS, superintendent of the Havana, Ill., schools, has succeeded the past year in making a good start in manual training and domestic science work. The former has been under the direction of D. W. McLemore and the latter of Miss Retta Bowman. A fairly good equipment has been secured and things looked quite promising until a recent school election. An element opposed to progress in school matters succeeding in this election and it is possible that they may cause the manual work to wait a year or two for the progressive people to wake up.

SUPT. CALOM MOON of South Bend, Ind., states that they are giving cooking to both boys and girls in the 7th and 8th grades with interest and good results on the part of the boys as well as the girls.

PLANS are being discussed for the merging of Harvard Scientific school and the Massachusetts Institute of Technology. If some satisfactory arrangement can be devised it will do away with the duplication of buildings, equipment and teaching force which now exists.

ALABAMA has established ten high schools intended for boys and girls from the farms. The courses in these schools will include the study of agriculture and industrial subjects. It is claimed that the work of the city high school leads away from farm and home life, and these schools are established in the hope of overcoming this tendency.

A COLLEGE of domestic science is to be established at the University of Chicago with Dean Marian Talbot at its head. The courses will include cooking and the study of the science of food stuffs. It is intended that the work shall include, besides actual cooking, domestic engineering, including house sanitation, public hygiene, the chemistry of foods, and other phases of sanitary science.—*School Journal.*

THE University of Wisconsin has just opened a department of domestic science. The legislature appropriated $15,000 for the new department and a kitchen and laboratory have been equipped. Miss Caroline L. Hunt is in charge of the work. The course includes scientific and practical study and preparation of foods, house sanitation, decoration and management, and domestic physiology.— *The School Journal.*

THE work of making the furniture for the Minnesota state building at the St. Louis fair was divided about equally between the high schools of Minneapolis and the Mechanic Arts High School of St. Paul. Such pieces as chairs, tables, settles, lounges, screens, jardiniere stands, foot stools, etc., were made.

GEO. S. WAITE, supervisor of manual training in the public schools of Kalamazoo, Mich., has been elected director of manual training for the new Western State Normal. The buildings for this school are now being erected at Kalamazoo, and it is proposed by Principal Waldo to make a strong feature of the manual training and rural work. A start is being made in the work by holding a summer school in the city school buildings.

A SUMMER school of art and manual training is announced by Throop Polytechnic Institute of Pasedena, Cal., to open Aug. 8th, and continue four weeks. Arthur H. Chamberlain is director of the school and he with four others compose the faculty. Eight courses are offered and the outline indicates that the field of art and manual training will be well covered.

THE teachers of manual training, domestic science and art in Allegheny, Pa., hold regular monthly meetings with their supervisor, C. B. Connelley, as chairman. In these meetings, lectures are given and discussions held, to the advantage of pupils and teachers.

THE "committee on original effort" of the Chicago Principals' Association are preparing a report calling for more work with the hands. They have been inquiring into the original effort on the part of pupils for some time. The following principles are to be the basis of the findings:

The average newsboy is smarter than the average schoolboy.

The country boy of twelve years has a better practical knowledge than the city boy of the same age.

The teaching of the principles of plumbing, constructing houses and street cars is better for obtaining original effort on the part of pupils than delving in books.—*The School Weekly.*

AN INTERESTING experiment for stimulating and developing the inventive genius of the pupils is being tried in the Manual Training School of Newburg, N. Y. It is known as the Caldwell plan, and consists in the offering of prizes ranging from two to ten dollars for the best original suggestion or invention presented during the school year. The suggestion or invention must be novel and original and the sole production of the one presenting it. It may be an improvement on anything made in the school or the tools used, any improvement in managing the class or doing the work, or in fact anything that pertains to public-school education. The suggestions or inventions are submitted in writing or by means of drawings. Impartial decisions are provided for by a committee on awards.

NEW YORK CITY.

DURING the winter a number of men interested in the school arts have met on Saturdays at Public School 77, for practice in sheet-metal work under the direction of Walter M. Mohr. Good progress has been made. Mr. Mohr has a very complete equipment of tools and shop appliances for this work, an enameling furnace having been added lately. The articles made include bowls, buckles, brooches, trays, boxes, paper cutters, etc. In the making of these the operations of shaping, sawing, filing, soldering, engraving and enameling are involved.

AT the April conference of the workshop instructors of Manhattan and the Bronx the subject of communal exercises for the eighth-year grades was discussed. A number of models were exhibited, consisting chiefly of apparatus for experiments in physics.

The vital points of the discussion might be briefly summarized as follows: (1.) To be successful the work should be thoroughly planned well in advance, so that the necessary drawings and material be ready. (2.) The work assigned should be adapted to the ability of the particular boy who is to execute it. (3.) The instructor should not spread his labors over too wide a range of subjects in any one section, but might profitably confine his efforts to working out various forms of the same model in each class; for example, one class might make different forms of water wheels, another different varieties of scales and so on.

IN Public School 166 the two class rooms of the 8 B grade have been provided with telegraph keys and sounders, made by the boys in the workshop. A committee consisting of two boys from each class of this grade strung the wire to connect the instruments. Only one wire was used, the circuit being completed by the use of a ground connection. During the science lesson messages pass back and forth between the two rooms, several of the boys having trained themselves to send and receive by the Morse code.

AT Public School 77 experiments have been made in working sheet copper and brass, employing the better workers among the "holdovers" in the different sections. The work has been received with great enthusiasm on the part of the boys and the results are highly satisfactory. The charactor of work includes shaping, sawing, filing and repoussé, and the particular objects include a bowl, tray, letter opener, candle sconce and fern dish.

TEXAS.

THE Allan Manual Training School, a department of the Austin public schools, has just closed its eighth year which has been the largest and most successful of any in the history of the school. More than 225 children have been enrolled during the year and the results of the work in the seventh and eighth grades, especially, have been very gratifying. Two changes in the faculty occurred during the year, Mr. Hanszen resigned in September to accept a position in the Dallas public schools, and Mr. Curtis resigned in October to accept a position in the Sherman public schools. Mr. Anderson of the St. Louis Manual Training School and Mr. Blackburn a graduate of the Allan Manual Training School were elected to fill the vacancies. The school has grown so large that there is urgent need of a larger building. The prospects at present are very bright for a new building in which there will be ample room for a complete department of sewing, cooking, etc., for the girls.

Mr. Hunsdon, director of the Allan Manual Training School again has charge of the manual training in the summer school of the University of Texas.

The following towns have taken advantage of the offer made by the state to help them introduce manual training into the schools of Texas: Austin, Belton, Divine, Dallas, Ft. Worth, Sherman, Waxahachie, San Antonio, Itasca and Taylor. The people of Texas are beginning to realize the value of the work so that it is only a question of time until all the large towns will have some phase of the work in the schools.

—N. S. HUNSDON.

BREVITIES.

SOME EXTRACTS FROM THE REPORT OF THE MOSELY EDUCATIONAL COMMISSION.

"They (the Commission) have also been impressed with the spirit which animates both teachers and pupils, and by the manner in which the two classes co-operate in the schools and colleges. Willingness, if not overwhelming desire, to learn seems to characterize the scholars, and teachers seem to be possessed of but one wish—that of helping the pupil in every possible way. The absence of class prejudices and of any 'religious difficulty' seems most materially to facilitate the work of the schools."

* * * * *

The important part which manual training is beginning to assume in the schools struck them forcibly. Such work appears to be in many ways of high value as an educational discipline, especially in developing handiness and alertness, and in familiarizing the scholars with constructive processes.—From the "Joint Report."

"Manual training is practiced in many of the schools, and in some of the high schools the equipment for this purpose is very complete, and the training excellent. In fact one is impressed on every hand with the practical character of the training in the State and city schools generally."—From the report by Arthur Anderton.

"All the people of the classes enumerated above (manufacturers, practical engineers, etc.) whom I met were unanimous on two points—there was not one dissenting voice. Everywhere I was told: An engineering apprentice in a factory should be a college-trained man; an engineering professor in a college should be actively engaged in the practice of his profession."—From the report of Prof. W. E. Ayrton.

"I have seen the German evening school system and the American evening school system, and neither is comparable with ours in quantity or quality. German and American educationists have a very high opinion of our British evening schools, but they look upon them as trade schools — institutions for the training of highly skilled operatives. Such is not a wholly correct view."—From the report of Robert Blair.

"In Chicago, however, I found at the training college presided over by Dr. Dewey at the University, a genuine attempt being made to carry the theory into practice. They begin with the kindergarten for the babies and the manual training is afterwards continued right through from the first to the eighth in a practical way. * * * Broadly speaking, therefore, it may be said that this school carries out the idea of manual training throughout.—From report of A. J. Shepheard.

"The fact most suggestive for everybody who visits the United States is the extraordinary interest the whole population, from highest to lowest, and richest to poorest, takes in education, not on the question of who is to collect the money to be applied for its upkeep or what the particular views on church government of the teachers may be, but on the question of how to turn out the most capable and adaptable young men and women, and how to train the best teachers for this purpose. Everybody among the adult population of the country, born within it, is a politician, and the chief point in his political creed, whether he belongs to the one party or the other, is to obtain for the people the very best education which it is possible to procure."—From report of Thomas Barclay.

SUGGESTIVE OUTLINE FOR A HIGH-SCHOOL COURSE IN FORGING.

PRINCIPLES.	MACHINE FORGINGS.	DECORATIVE FORGINGS.
Drawing.	½-in. square from ¾-in. round. ½-in. octagon from ¾-in. round. ½-in. round from ¾-in. round.	Flaring or tapering scroll ends.
Bending and Twisting.	⅜-in. round ring, 2¼-in. diam. ¼-in. staple.	S scroll. C scroll.
Shouldering.	Double shoulder exercise: Gib and cotter. Meat hook. Gate hook.	Bracket hook.
Upsetting.	Reins for tongs, ⅝-in. round to ⅝-in. square.	
Raising.	Largely decorative: Forge shop dipper.	Back-ground pieces.
Veining.		Key-hole escutcheons.
Welding.	⅜-in.x¾-in. Flat ring, 3 in. diam. " " Collar. Chain ring. Links. L welt. T welt. Straight welt.	Strands for handles or lamp standards, Many other details. Hinges.
Punching and Splitting.	Y split. Camp fork. Right-angle split.	Base for lamps or candlesticks, etc.
Forming.	Corner brace. Handle for dipper. Chain hook. Clothes hook. Tongs.	Leaf on handle. Ball ends. Forged handle.
Steel.	Prick punch. Scraper. Cold chisel.. Hammer. Lathe tool. Forge tools. Tempering exercise:	

Arranged by WILLIAM C. STIMPSON,
Pratt Institute, Brooklyn, N. Y.

BENCHWORK FOR GIRLS.

American girls have the same educational advantages as boys with one exception: They don't have the same manual training. In schools where benchwork is taught, the training is given to boys but denied to girls. This is unjust. It is unwise. If boys are given benchwork, girls should be given benchwork. The sexes are not divided in the public schools on any other subject. If benchwork is educational for all boys it is educational for all girls, just as arithmetic is educational for both sexes.

The giving of cooking and sewing in lieu of benchwork is not sufficient. Sewing and cooking are good, but the training should be given to both sexes. If these two subjects are educational for all girls, they are educational for all boys. The need of improving the home life should call for no sex division. The boy as well as the girl makes the home. The cooking and sewing would have been sufficient for the girl of fifty years ago.

The girl of today needs the home training, but with it she needs the training of eye and muscle and the breadth of view that her brother gets.

Today the work of the world is interchangeable. Who can say this is woman's work, that is man's work? Each is having a larger freedom in choice of work. Look at the host of men cooks. There are men dressmakers, men milliners, men house decorators. There are women lawyers, women factory owners, women street-car managers. Our public schools are for the traiuing of all men and all women.

Manual training people are not consistent. Why should girls be given work in thin wood in the fifth grade and be denied thick wood in the sixth grade? Why should girls be taught the use of the knife in the fifth grade, and be denied the use of the chisel in the sixth grade? Or is there something about the words benchwork, "which should not be mentioned before ladies," as Mr. Wegg says.

It isn't because girls haven't the strength. I have taught girls in the same classes with boys, working at the bench, in thick wood. They were equal to the work.

It isn't because girls haven't the ability to learn. Manual-training teachers know that boys have to learn how to use tools. Boys have no divine right in ability to drive nails. Haven't you known families where the boy had no mechanical ability? The girl was the handy one. The girl needs this manual training just as her brother needs it; to be able to do more, see more and enjoy more.

Here is a case; This winter a mother came to the principal of a building, and said she could do nothing with her daughter, that the girl ought to have been a boy. She did nothing but make boxes and coops. The child sat by, too miserable to look up. The principal showed the mother that the girl had ability with her hands, that if she kept on at school she could become a manual-training teacher. The child found a friend and now meets the principal with a smile, feeling that she is good for something.

Fifty years ago most people thought a high-school education useless for girls, unless possibly they were to become teachers. Now it is difficult to realize that such an absurd notion ever existed. Girls should have this benchwork. The breadth of life that has come to you and me through this training, shall be theirs if you say it may.

Los Angeles, California. CAROLINE E. HARRIS.

SUGGESTED COURSE IN HAND-WORK FOR HIGH-SCHOOL GIRLS.
(MAY COVER A SIX-YEAR COURSE.)

FIRST YEAR.	
Weaving: 75 hours. Study of different weaves; use hand loom; and make a usable article. Original design in raffia basket. Raffia hat from original design.	Freehand sketching. Design; simple study of form; ornament and color. Design for basket and hat.
Sewing: 200 hours. Hand and machine-made articles of clothing. Wash dress designed and made.	Working drawings applied to drafting. Design for wash dress.
Millinery: 25 hours. Bows; wire raffia hat and trim according to original design.	Design in color for trimmed raffia hat.

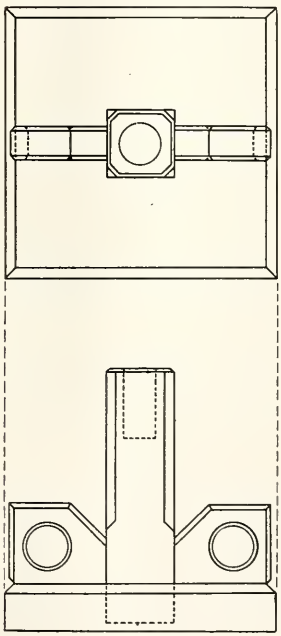
SECOND YEAR.	
Work in Wood: 75 hours. Elementary carpentry and joinery. Making useful articles to serve as basis for design in wood-carving.	Working drawings. Historic ornament. Still life.
Modeling: 75 hours. Study of ornament, using clay as medium.	Charcoal drawing from casts.
Wood-carving: 150 hours. Simple design carved in wood.	

THIRD YEAR.	
Dressmaking: 150 hours. Drafting, cutting, fitting and finishing a lined dress from original design.	Sketching from model. Study of line and form in designing dress.
Millinery: 50 hours. Make, place folds on, and trim a winter hat.	Study of color in application to dress.
Advanced Clay Work: 150 hours. Plaster casts from models made. Pottery work, using wheel and using casts. Ornamented pottery.	Design hat to suit face and form. Design in pottery; form, color, ornament.

FOURTH YEAR.

Electives: Two, 150 hours each. Advanced woodwork. Advanced work in pottery. Metalwork — hammered copper, enamelled copper, using simple forms and designs. Tooled leather — book covers; bookbinding.	Each product must be designed in the art work before it is put into concrete form in manual department.

By Abby L. Marlatt,
Manual Training High School,
Providence, R. I.



CANDLE STICK

REVIEWS.

How to Make Bead Work. By Mary White. Doubleday, Page & Co., New York, N. Y., 1904; 5×7½ in.; pp. 142; illustrated; net, $1.00.

The author of this book is already well known to elementary teachers through her various books on basketry. The present volume will also attract the attention of instructors anxious to find another occupation which will relate to the studies of primitive life and offer opportunities for original work in an inexpensive medium. With the needs of the classroom in mind the author has prepared a separate chapter on beadwork for children and has illustrated the several exercises that are particularly suited to school practice. A simple and very inexpensive form of bead-loom is also described in detail.

The earlier pages of the book are given over to a description of the materials used and the processes of stringing and plain weaving. Interesting examples are also shown of "diagonal weaving with a loom," a practice which has come down to us from the gray mist of early Egyptian history. There follow other chapters describing work on canvas, and the primitive bead work of the East and of our Sioux and Navajo Indians. The book throughout is copiously illustrated by dozens of line engravings and a number of half-tone plates. —*H.*

How to Judge Architecture. By Russell Sturgis, A. M., Ph. D. The Baker & Taylor Co., New York, N. Y., 1903; 6¼×9½ in.; pp. 221; 84 illustrations; net, $1.50.

It is now some years ago since Prof. Van Dyke offered his small volume on "How to Judge of a Picture." A few other authors have since ventured into this field — astonishingly few when one considers the favorable reception which greeted the first comer. It has remained for Prof. Sturgis to render an equal service to the student of art by placing before him a lucid exposition of those things in architecture, which make for beauty of composition and for elegance of proportion.

Following the thought suggested by his sub-title of "A Popular Guide to the Appreciation of Buildings," the author offers no rules for the consideration of structural details, but chooses rather to lead his reader from the consideration of early Greek temples through the development of medieval architecture and the revival of the classic to those structures which he classes under chapter headings of "imitative" and "Original designs of the nineteenth century." His aim in this method of approach he defines as an effort "to help the reader to acquire, little by little such an independent knowledge of the essential characteristics of good buildings, and also such a sense of the possible difference of opinion concerning essentials that he will always enjoy the sight, the memory or the study of a noble structure without due anxiety as to whether he is right or wrong."

As an omnipresent form of art, uniting in itself both the structural and the decorative, architecture offers one of the most suggestive and desirable of subjects for the cultivation of discriminative artistic judgment. To the many who yearly seek the well-traveled paths which lead to Athens, Rome and Florence, Prof. Sturgis'

volume with its four score of illustrations offers valuable aid; its more important lessons are, however, for the far greater number who, at home and within the boundaries of their native cities, may be led to consider more carefully those elements in the structures surrounding them, which go to make for artistic dignity and prosperity. As a people we have been not a little criticized for our shortcomings in matters of taste. The volume in question is to be welcomed as a noteworthy contribution to that, as yet, far too limited list of books which, coming from the hands of competent authorities, act to raise the standards of popular judgment in matters concerning excellence in art. —*H.*

Pictorial Composition and the Critical Judgment of Pictures. By Henry R. Poore; The Baker & Taylor Co., New York, N. Y., 1903; $6\frac{1}{4}\times 9\frac{1}{2}$ in.; pp. 277; 80 illustrations; net, $1.50.

A second edition of Mr. Poore's treatise on Pictorial Composition called for within a year, is evidence of the widespread desire for information upon the topic so long ignored of the art schools. For years it was the complaint of students of painting that after they had perfected their technique they were at a loss to know how to go about the evolution of a picture. Of late the demand for such information has been met by the establishment in various schools of courses in composition and by the appearance of one or two texts upon the subject. Mr. Poore's volume is such a text-book, and is devoted in large measure to an analysis of those things which make for good pictorial arrangement. In other chapters of the work he treats of the "Aesthetics of Composition" and "The Critical Judgment of Pictures."

The first division, by far the longer, will be found by the student the most helpful. In his analysis, the fact that the writer is a painter, writing about the practice of his art, makes his suggestions apt and instructive. For the very reason, however, that he is a painter and not by profession either a writer or a critic, his exposition is less illuminating when it deals with questions of æsthetics and criticism.

To the student of painting or of design, to the photographer and to that large, and ever growing, class of persons interested in pictures, this volume will be of service in revealing those harmonies of arrangement of light and of form which distinguish every fine composition. It will also aid in giving the reader something of the painter's point of view. Such knowledge cannot but be helpful to all those who are anxious that their appreciation of pictures shall be a reasoning appreciation. *H.*—

Wood-Carving, Design and Workmanship. By George Jack. No. III of "The Artistic Crafts" series of technical hand-books, edited by W. R. Lethaby; D. Appleton & Company, New York, 1903; $5\times 7\frac{1}{2}$ in.; pp. 311, including 15 full-page collotype plates; net, $1.40.

It is difficult to find a satisfying book on wood-carving because the carver's art is so subtle that it cannot be completely analyzed and set forth on printed pages. There are, however, technical processes incident to the art, and fundamental considerations of design which may be expounded. Such an exposition with reference to English wood-carving is the volume before us, and it is rich in practical suggestions for anyone who wishes to produce carved ornament in the spirit of the Gothic.

But it is more than this for it considers wood-carving in the light of the Arts and Crafts movement. It insists that the designer and the carver must be one and the same person, for the design cannot rightly be considered completed until the carving is finished.

The author also points out that the art of wood-carving is not merely a matter of technical skill, but that it must fulfill an intellectual function, "as an interpreter of the dreams and fancies of imagination." These two considerations are wrought into the entire book.

Like the previous books of the series, "Bookbinding," by Douglass Cockerell, and "Silverwork and Jewelry," by H. Wilson, this volume is an attractive piece of book-making. It is well printed, bound in a pleasing manner, and the text is illustrated with numerous pen drawings. —*B.*

Metallic Ornaments of the New York Indians. By William M. Beauchamp. Bulletin 73 of the New York State Museum. University of the State of New York, Albany, 1903. $5\frac{3}{4}\times 9$ in.; pp. 120; 37 plates; paper cover, price 30 cents.

This is a valuable addition to the series of archeological papers written by Dr. Beauchamp. The plates are especially interesting to teachers of design. One is surprised at the degree of refinement in the designs made by aboriginal Americans. —*B.*

Drawing and Manual Training in the Elementary and Secondary Schools. The Manual Arts Booklet No. 1, edited and published by C. S. Hammock, Director of Manual Arts, Northern State Normal and Industrial School, Aberdeen, S. D. 7×10 in.; pp. 54, illustrated; price, 25 cents.

This is the first of a series to be published occasionally to help in building up work in the manual arts. It contains articles by Prof. John Dewey, Dr. C. M. Woodward, Mrs. Hannah J. Carter, J. H. Trybom, J. F. Brumbaugh, A. C. Newell, C. A. Bennett and the editor. With Mr. Hammock's energy behind it this publication is sure to do much for the Northwest. —*B.*

Report of the Commissioner of Education for Porto Rico, Dr. Samuel M. Lindsay, to the Secretary of the Interior, Washington, D. C. $5\frac{3}{4}\times 9$ in.; pp. 270; 27 plates; paper covers.

This report contains the special report on plans for the organization of industrial schools in Porto Rico, which was prepared by Arthur D. Dean, of Springfield, Mass., after visiting the island as expert agent of the Department of Education.

The Stout Training Schools, Menomonie, Wisconsin, L. D. Harvey, Supt. This contains a detailed outline of the courses in manual training from the kindergarten through the high schools as taught in the Menominie schools. It is worth keeping for reference and comparison.

The following have been received:

An illustrated announcement of courses in the Department of Art and Design at the University of Illinois.

Constitution of the Illinois Manual Arts Association, William T. Bawden, Secretary, Normal, Illinois.

Girls' Industrial College *Bulletin*, Denton, Texas.

Circular of the California School of Mechanical Arts, San Francisco.

The First Annual Report of the Manhattan Trade School for Girls, 233 West Fourteenth Street, New York City.

Public school reports containing chapters on manual training have been received from Watertown, Mass., Oak Park, Ill., Springfield, Mass.